RAILROAD

35 CENTS MAGAZINE JANUARY

P. 99 - Interurban & st. railway listings by cities.

For once they actually agree!

Hope and Crosby, in the movies, seldom see eye to eye.

But there's one thing they really do agree on —they both think U.S. Savings Bonds make wonderful Christmas gifts!

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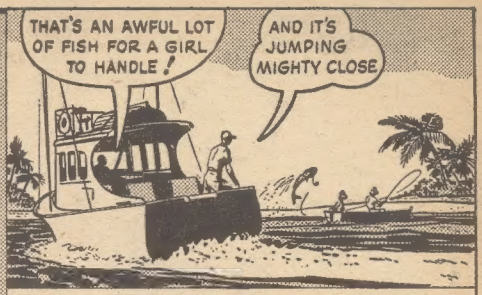
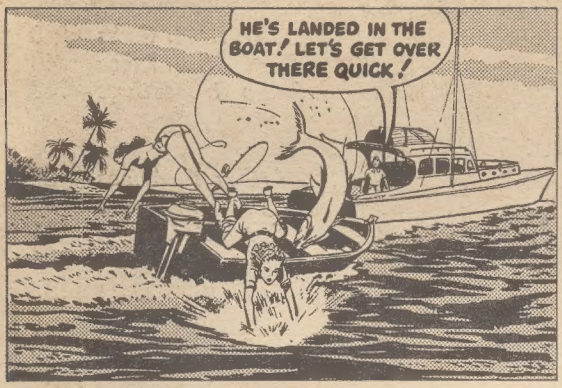


JERRY CANNON AND HIS BROTHER KIP ARE RETURNING TO PORT FROM A LONG DAY OF TROLLING FOR SAILFISH IN THE GULF STREAM. WHEN . . .



PICTURES? TAKE KIP HERE, BUT LEAVE ME OUT. I LOOK LIKE "BLACKBEARD THE PIRATE"
WHY NOT CLEAN UP IN THE CLUBHOUSE WHILE I GET MY CAMERA

SAY, THIS BLADE'S A HONEY! I'VE NEVER ENJOYED A QUICKER, SMOOTHER SHAVE
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MAGAZINE

Originally Railroad Man's Magazine, founded 1906

January, 1948 *Vol. 44, No. 4* *35 Cents*

Cover: *On the Upper Juniata (State Canal and PRR's Tiger)*
By Henry B. Comstock

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Published monthly by Popular Publications, Inc., at 2256 Grove Street, Chicago 16, Illinois. Editorial and Executive Offices, 205 East 42nd Street, New York 17, N. Y. Henry Steeger, President and Secretary. Harold S. Goldsmith, Vice-President and Treasurer. Entered as second-class matter January 6, 1943, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879. Copyright, 1947, by Popular Publications, Inc. This issue is published simultaneously in the Dominion of Canada. Copyright under International Copyright Convention and Pan American Copyright Conventions. All rights reserved, including the right of reproduction, in whole or in part, in any form. Title registered in U. S. Patent Office. Single copy, 35c. Annual subscription for U. S. A., its dependencies, and Canada, Mexico and Cuba, $3.50; other countries, 75c additional. Send subscriptions to 205 East 42nd Street, New York 17, N. Y. For advertising rates, address Sam J. Perry, 205 East 42nd Street, New York 17, N. Y. When submitting manuscripts, enclose stamped, self-addressed envelope for their return, if found unavailable. The publishers will exercise care in the handling of unsolicited manuscripts, but assume no responsibility for their return. Any resemblance between any character, appearing in fictional matter, and any person, living or dead, is entirely coincidental and unintentional. Printed in the U. S. A.

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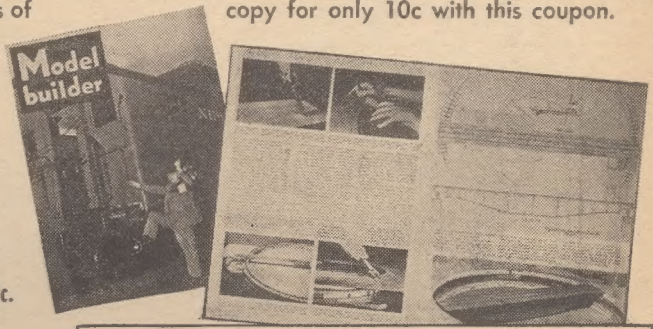

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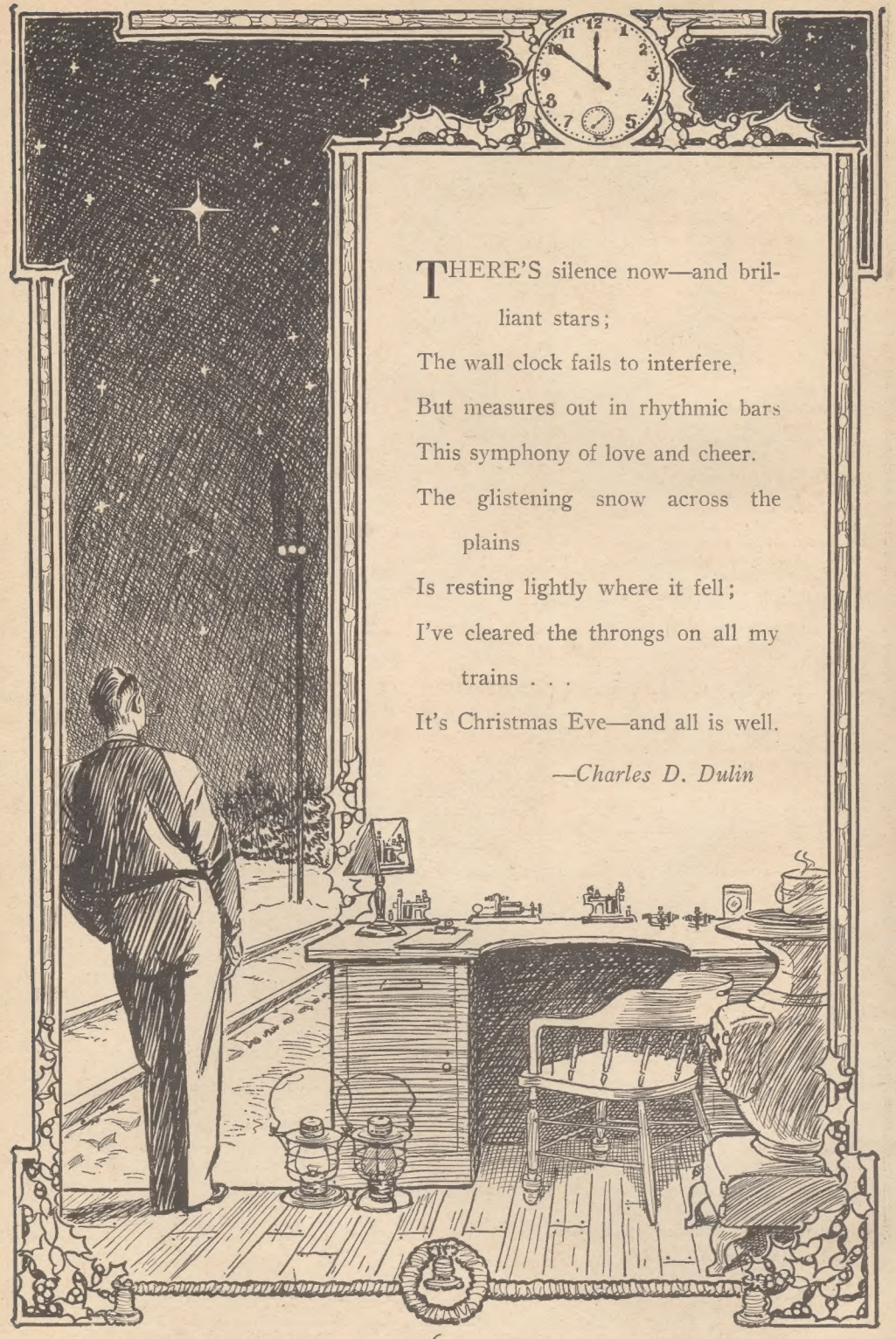

THERE'S silence now—and brilliant stars;
The wall clock fails to interfere,
But measures out in rhythmic bars
This symphony of love and cheer.
The glistening snow across the plains
Is resting lightly where it fell;
I've cleared the throngs on all my trains . . .
It's Christmas Eve—and all is well.

—Charles D. Dulin

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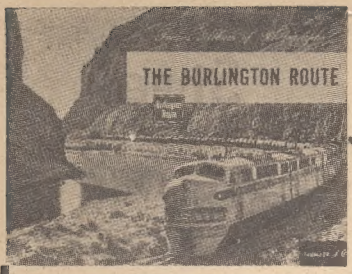

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Steel Across the Rivers

Courtesy Louisville & Nashville Railroad

PRESENT-DAY Henderson bridge. 1885 Ohio crossing at this point was iron and steel through-truss

By H. H. GROSS
Associate Editor, Railroad Magazine

SCATTERED over the Kanawha's lean banks, slippery with mud from the slowly rotting snow, lie great slag piles, residue of the material used to create the east approach of the Baltimore & Ohio's new bridge at Point Pleasant, West Virginia. On the Henderson side of the river, three-fourths of a mile from its confluence with the Ohio, a deck girder span gleams on top of six open-arched piers. Nearby, half-buried in slag fill, lies the superstructure of the old iron viaduct over which no car exceeding 152,000 pounds gross weight could safely venture. The new steel truss will allow the road to extend operation of its 240,000 pound cars and Mikado engines into the Huntington and Kenova area.

On the east a derrick car is traveling slowly back and forth, setting the last of the girder spans in place. Between the slag fills and the temporary wharf runs standard gage track, route for shuttling cars filled but a moment before by the ceaselessly jerking boom of the stationary derrick. The derrick car operating on the bridge structure picks steel from the car-assembly as it moves along into proper position, shifts it westward where a span is assembled, and then advances to lift the next one into place. In mid-channel, between the falsework bents erected to support spans 13 and 14, which are now in process of being placed, great barges shift under the grind of the icefloes banking the steel bents. The Ohio and the Kanawha have begun their spring rise.

The time is the first week of March, 1947—an anxious period for the engineers of the bridge. The steelwork for these final spans was moved to the site in barges. The falsework bent placed 185 feet from the center of the east pier has received the weight of the truss, and the bent nearest the east pier has been moved and set up again, 170 feet in front of the west pier. Now the west truss pier has been reached and the span is in balance over the two bents. Drifting ice, rising floodwaters may jar the barges, jamming them too heavily against the falsework. If the bents should buckle while the weight of the beams is on their crosscaps, then the hydraulic jacks will be powerless to readjust the elevation of the truss.

HELL GATE, entrance to New York City, as viewed from the air over Long Island Sound. Next to the Bayonne bridge, this two-hinged steel arch is the longest span of its kind in the world

Photo from Culver Service

Photo from Arno Talesnik, 1853 Ditmars Blvd., Astoria, L.I.C., N. Y.

ENDURING stability and unusual beauty of Hell Gate are due to securing the ideal line of equilibrium for the parabola-shaped bottom chord, the principal carrying member of the arch

Visions of a falling span, whirling in gigantic loops to sink below the surface of the ice-capped flood, haunt the engineers and construction men.

The final step in the building of a bridge is always the most trying and difficult. Yet, two weeks later, so precisely were the plans drawn, the last five panels of steelwork were landed on Pier 14 and the bottom chord was riveted fast. In another week, spans 4 and 5 had been shifted into position, and the race to the west pier was over and done. On April 17th, the new Kanawha bridge was open to haul the capacity loads which already streamed between Wheeling and Parkersburg on the main line.

Bridge 1730 replaces a cantilever structure erected in 1888, more than thirty years after the B&O first spanned the Ohio at Wheeling. Between those dates almost the whole of the science of modern bridgebuilding was developed. Before Stephenson invented the locomotive and built the first real railroad bridge, the wooden or stone span across a river remained almost exactly what it had been at the fall of the Roman Empire. Sharp turns at the ends of the bridge, steep inclines in the approach, rule-of-thumb planning and building—all were common.

By 1947, there were 90,000 steel bridges, with an aggregate length of 1,500 miles on 240,000 miles of U.S. railroad. The combined length of all railroad bridges in the country was almost 4000 miles. Practically all of these bridges are of a kind the world had never seen prior to the invention of the locomotive. With highway bridges the stresses resulting from live loads are not much greater than the dead weight of the bridge itself. But the locomotive demanded bridges scientifically constructed, of materials whose tensile strength could be exactly measured. In fact, it may be said that the locomotive produced the iron bridge.

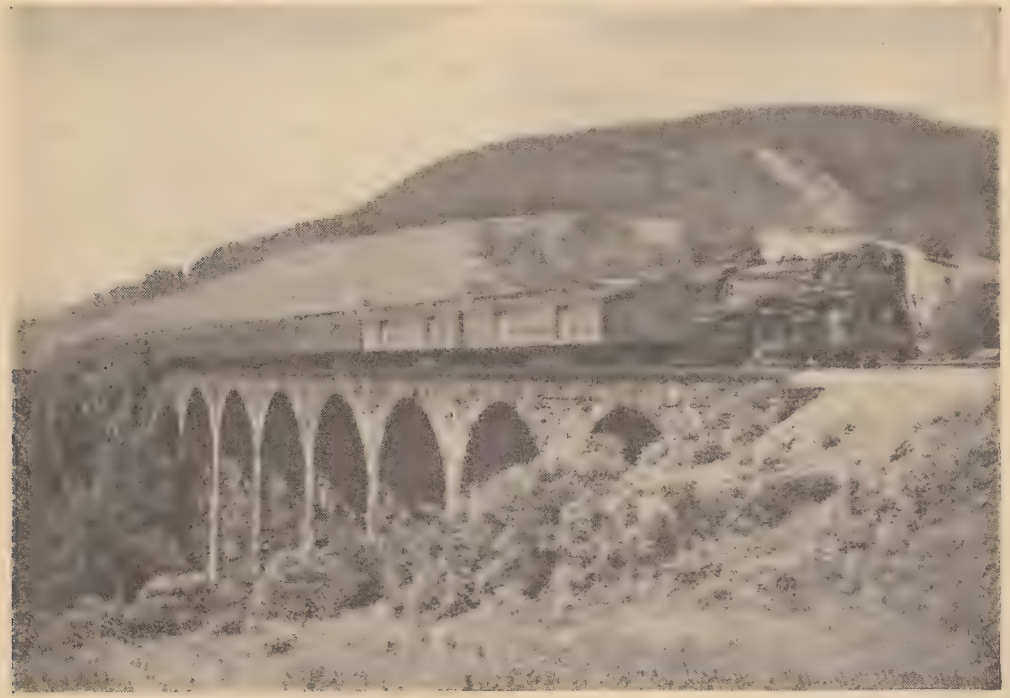
The first crossings of this material imitated the strongest bridge known to man—the arch. John Wilkerson's eighteenth-century span across the Severn at Carbondale, England, was of this type. Made up of nearly five semicircular ribs of cast iron, it had a total weight of 378 tons and was erected like the masonry arch with cast iron blocks taking the place of stone *voussoirs* (wedge-shaped pieces of which an arch or vault is composed) in the arch ribs. Similarly, when George and Robert Stephenson built the first bridges for the locomotive they had invented, the form used was the arch.

Many arches designed for highway use were taken over by the railroads and effectively served as carriers of locomotives. A well-constructed arch actually grows stronger when subjected to high compressive stresses. This is due to the fact that weight exerted upon the surface of an arch tends to set yet more firmly the interlocking surfaces of the *voussoirs*. The Stephensons' High Level bridge over the Tyne consisted of an arched beam or bowspring girder held together by vertical ties. It was also the first double-deck structure with tracks on the upper level for railway carriages and a roadbed for highway traffic on the lower level. The piles were driven by steam hammer, the first use of this instrument in bridge construction.

Yet another Stephenson structure, the Britannia Bridge, designed for the Chester & Holyhead Railway and built across Menai Straits, Wales, is sufficiently important to deserve mention here. A suspension bridge would

not have been rigid enough to stand the extremely high tides which beset the straits and the foundations were not right for supporting the piers necessary to either the arch or the cantilever. Robert Stephenson therefore conceived the idea of a tube acting as a beam through which the trains might run. This was the English forerunner of the Victoria Tubular bridge over the St. Lawrence at Montreal (1853), which was also designed by Robert Stephenson. The bridge was composed of two continuous hollow tubes of wrought iron, each 1511 feet long and weighing 4680 tons, placed side by side and supported on two abutments and three towers. Thus, there was a total of four continuous spans, the two central ones being 460 feet each and those at the ends, 230 feet. The continuous span bridge is lighter and more easily deflected than the independent span, which reaches from support to support without projecting beyond, and great changes of stress take place if the supporting piers sink even slightly. Completed in 1850, the Britannia bridge boasted the longest railway span in the world until Roebling's Niagara bridge was completed in 1855.

With his tubular bridge, Stephenson, who had already made use of the arch for railway construction, now revived the beam. The cantilever and truss types were to follow shortly as mechanical appliances began to shorten construction time. The truss was the more economical of the two types, and for that reason it dominated the fifty years between 1840 and 1890. Latrobe's arch, Smith's cantilever, Roebling's suspension—all were exceptions in type



Courtesy Erie Railroad

STARRUCA, looking east toward Gulf Summit with Randolph Hills in background, recalls the Roman viaduct with its massive masonry and lofty arches. Train is the ***Erie Limited*** crossing to Lanesboro, Pa.

Courtesy Baltimore & Ohio Railroad

LATROBE'S "Folly" became Latrobe's Triumph in August of 1835 when, one month after completion of the Thomas viaduct, the B&O became the first railroad to enter Washington. The photograph above reproduces a drawing on stone by Thomas Campbell of Baltimore

as they were in quality. Albert Fink, the pupil and protege of the great Latrobe and of his assistant, Bollman, was the genius of the truss field.

THE type grew out of the covered wooden bridges, first widely used in Switzerland in the sixteenth century. As for our own covered bridges, Sir John Rennie, who designed the first Waterloo bridge, is indirectly responsible for them through articles written for the Third Edition of the *Encyclopedia Britannica*. The early American bridge builders were almost all practical carpenters. To these untrained men, Rennie's articles on arches, centerings, roofs and the strength of materials, as they appeared in the 1796 Philadelphia Edition, were invaluable.

The first professional bridge builder in American history would appear to have been Timothy Palmer. He introduced the trussed arch in his so-called Permanent Bridge over the Schuylkill at Philadelphia. The depth of the stone piers, forty-one feet and nine inches below common high water, was unparalleled in the history of hydraulic engineering. Following Palmer, Louis Wernwag introduced a design which involved anchoring the ends of spans to the abutments by means of tension rods. The principle resembled that of the stiffened suspension bridge but with the cable inverted to form an arch in compression.

Wernwag used this principle when he helped erect the original timber structure at Harper's Ferry, the gateway to the upper valley of the Potomac and to the rich Shenandoah Valley. The construction of this bridge marked the most important railway crossing of a river up to this time. For many years it remained one of the most unusual bits of railroad engineering in the United States.

On the right was the Shenandoah; on the left, the Potomac. Both approached the mountain range and joined at the town of Harper's Ferry. To cross the Potomac here meant the construction of a bridge longer and more elaborate than any yet built in

America. The joint highway and railway bridge, of six spans totaling 900 feet in length, extended not only across the Potomac but also across the Chesapeake and Ohio canal on the Maryland side. On the eastern side, it was necessary to build on a decided curve; while at the center of the bridge, the B&O tracks turned sharply right, those of the Winchester & Potomac decidedly left, thus forming a junction of two railroads halfway across the channel. The structure was completed in 1846, and in the same year in order that the W&P should make connection with the B&O tracks, Wernwag added the left span of the "Y" section of the bridge, close to the center of the main structure.

Wernwag's bridge was a covered structure with double tracks for the two railroads that used it; the highway sometimes paralleled, sometimes crossed the tracks! Its history was full of ups and downs, literally speaking. Twice it fell, due to the weakness of the original stone piers. On two other occasions, decaying timbers beneath the close outer boarding caused an entire center arch to give way. Fourteen years after, the bridge was rebuilt in wrought iron by the great Wendell Bollman, an ex-B&O carpenter who was to invent a truss form far superior to any that had gone before.

Wernwag's system of trusses had been light, with the arch heavy. After him, Theodore Burr conceived the idea of reversing the plan of strengthening the arch by the truss and, instead, strengthened the truss by the arch, thus attaining a bridge of much greater endurance than any Palmer or Wernwag had designed. The famous double-barreled wooden covered bridge at Phillipi, W. Va., on which sleeping Confederate soldiers awakened to the first cannon shot of the Civil War, was built by Lemuel Chenoweth to Burr's design and is still standing. The story goes that Chenoweth won the contract for the Phillipi bridge by placing the ends of his model on two chairs and then standing upright with his full weight on the model.

The first Bollman truss, a 124-foot iron span across the Potomac at Harper's Ferry, was simply a development of Burr's kingpost idea, with the addition of members to stand pulling strain (tension) crossed by other members to take pressure strain, or compression. It is in these latter members that the real strength of the truss lies and Bollman, in constructing this early truss (1851) for the B&O substituted wrought iron for timber in the compression members, binding them together with wrought iron bracing rods so placed as to sustain the structure against both lateral and wind pressure.

Between Burr and Bollman, three men experimented with the truss. Ithial Town's web lattice design, patented in 1820, was the first true truss, entirely free of arch action and horizontal thrust. Ten years later, Stephen H. Long produced a lattice design with abutment bracing and a braced overhead king truss in the center of the upper chord. This form was never popular for in 1840, William Howe, a Massachussetts architect, introduced a single web lattice with vertical tension rods of iron. The iron took up the tensile (pulling) strain, but wood was retained to bear the compressive strains. In other words, Howe used wooden uprights and iron diagonals to compose the side webbing. With Bollman and

BRIDGES
1
EYE-BEAM. First bridge depended upon thickness alone for strength. I-beam cross-section has great strength, little weight
2
SUSPENSE! DRAMA! Airy grace of the suspension span had its origin in nature's hanging vines
3
SUPPORT FOR FAST-GROWING BURDENS. The arch ranks among the earliest engineering forms. Stone bridges built a century ago still carry main-line traffic
4
LIGHT AND TRUSS' WORTHY. Diagonal bracing for rigidity is found in every type of bridge, is basic to the through or deck-truss structure
5
OPPOSED COOPERATION. Each abutment of the cantilever is the fulcrum for a horizontal mass either perfectly balanced or supported at its outer end
TPL

CAST IRON Phoenix-column bridge with wrought iron tension members antedates use of steel structural members. Example above still spans the Neversink River on New York, Ontario & Western's Port Jervis Branch

Photo by J. A. McClellan

Howe the transition from wood to iron was made.

The Howe truss became popular with the advent of railroads. Amasa Stone bought the patent and his company, Stone and Boomer, built the Western (B&A) Railroad's great bridge over the Connecticut at Springfield, Mass. The first iron bridge, on the North Adams branch of the Western, dates from 1846. It, too, was a Howe design; and according to R. S. Allen, editor of *Covered Bridge Topics*, resembled a plain girder of today with low webbed trusses.

Typical of the Howe genius, because here the single-web truss was used, was the bridge erected by Nicholas Powers over the Susquehanna at Havre-de-Grace during the Civil War. This twelve span railroad bridge was one of the first not to be covered. Powers, who employed 400 workmen on the project, was paid seven dollars a day with a bonus of $500 if he should complete the bridge without accident. He combined the Howe truss with the arch in the outer trusses.

In 1844, four years after Howe patented his truss, Caleb and Thomas Pratt collaborated on a truss which was the exact reverse of Howe's in that the diagonals instead of the verticals were of iron and were in tension.

The Pratt invention arrived on the scene just when the railroads began to demand heavier bridges of longer spans. Like the Howe truss, Pratt's was originally intended for wooden materials, but as events developed it came to be almost always constructed of iron.

As mentioned earlier, Amasa

Stone bought the rights to the Howe patent one year after it was issued. Interpreted in wood and iron, the truss served the New York Central well for several years. Then, in 1865, Stone built for the Lake Shore Railroad the first Howe truss to use wrought iron in the diagonals as well as the verticals, over a steep gorge near Lake Erie at Ashtabula, Ohio. This 165-foot structure, with iron braces from the lower to the upper chord in the 11-foot panels, served exactly eleven years before the loading became too heavy.

IT IS well known how, one December night, westbound Number 5 running two and a half hours late crashed twenty feet to the bottom of the gorge. Dan McGuire driving the *Socrates* on the head-end had reached the center of the bridge when he heard a report like a tornado and glanced back to see the second engine sinking. He widened the throttle, against a pull that was "like going uphill," and managed to reach the western abutment. Behind him, eleven cars were falling through the gap dragged by the second locomotive, the *Columbia,* with G. D. Folsom at the throttle. Of the eighty-four persons killed, almost all died instantly from the crash of car on car. Others drowned in the icy waters at the bottom of the gorge when fire swept through the splintered coaches.

Mr. W. E. Harrington of Minerva, Ohio, has been kind enough to furnish a transcript of the legal investigation which tried to settle the blame for the terrible disaster. The coroner's jury seems to have taken a serious view of their duties. They were, perhaps, the first body of Americans to protest against the erection of railroad bridges by men without knowledge of the science involved in such an undertaking. They protested, too, that although iron bridges were in their infancy, no effort was ever made to test the endurance of such spans by practical methods. "This experiment," they concluded, "has been at a fearful cost of human life and human suffering."

The fire which broke out in the splintered coaches had its scandalous aftermath, some people claiming that the police department's failure to act as a fire-fighting brigade was due to orders from the railroad company. This old cry of "No damages to the survivors when there is no body" resounded for many years. Approximately thirty-five of the total dead were burned beyond recognition; these

THE SOCRATES, **lead engine on westbound Number 5, as she looked immediately after the Ashtabula disaster, in which *The Columbia* and eleven cars were lost. Note the tank is off the track**

Photo from William E. Harrington

Courtesy Erie Railroad

ORIGINAL PORTAGE over the Genesee River gorge stood for 23 years before the hoarse growl of flames and crackling of timbers—"like an approaching hurricane"—destroyed the 1,600,000 board feet of timber of which it was constructed

unknown were buried in the Ashtabula cemetery and eight years later the Knights of Pythias erected a monument over their resting place.

Of the sixty survivors, one remained in 1942 to collect damages. He was Harry Ellsworth Bennett, who had suffered a back injury and the loss of an eye in the wreck. He celebrated his 101st anniversary with the remark:

"The company promised me a dollar a day as long as I lived. That was a pretty good bargain; so far, I've collected $23,700."

Although the 60-day coroner's inquest on Number 5 had condemned the use of iron and the ignorance and carelessness of the workers employed by Stone's company, the rest of the world united in condemning the Howe truss. During the next twenty-five years, the Pratt truss was almost everywhere the standard for railroad construction. Yet, despite the high value of this type, railroad

bridges continued to fail at the rate of one annually for every 5000 miles of road.

Actually these failures were due to the properties of wrought iron with its high dead load, and to the ignorance of its action under tensile strain and the consequent practice of using insufficient diagonal bracing. Steel was the answer to the problem, but it was not to come until 1878 when the Chicago & Alton spanned the Missouri at Glasgow, S. D., with the first all-steel bridge. Between that time and the present lies the history of many a bridge.

Prior to wrought iron came cast iron and prior to that, wood. The period of cast iron experimentation was full of changes and odd trends toward this or that material. Trumbull's bridge across the Erie Canal at Frankfort, N. Y., is said to have antedated Bollman's iron span by eleven years, and in 1847 Nathaniel Rider had begun to design bridges in which the top chords and posts were composed of cast iron but the remaining parts were of the stronger wrought iron. The failure of a Rider bridge in 1850 caused the Erie to remove all iron bridges along its right-of-way. This perhaps explains why such structures as the Cascade and Portage were built of wood at a time when all forward-looking roads were beginning to experiment with iron. In the same year, Squire Whipple of Utica, N. Y., furnished the first correct mathematical formula on stresses and laid the basis for an era —still far in the future—of scientific bridge design in his exhaustive *Elementary and Practical Treatise on Bridge Building*. It was also in 1847 that James P. Kirkwood completed one of those stone arch viaducts which date back to the Romans.

The first erection of the form for an American railroad occurred in 1836 when Benjamin Latrobe constructed the B&O's Thomas viaduct at Relay, Md., nine miles out of Baltimore. This curving bridge, seven hundred feet long with eight ellipitical arches, each sixty feet in width and about sixty-five feet above the stream, was originally designed for six-ton locomotives. Today, it supports 300-ton locomotives and the heaviest of steel trains. It is curious to recall that this bridge was known in 1830 as "Latrobe's Folly," even to engineers who swore that the viaduct could not even be built since it would not stand under its own weight!

It took Kirkwood a single year and $320,000 and eighty men to build the Erie's great bluestone arch. Its eighteen slender arches rise 110 feet above Starrucca Creek and span it in 1200 feet. When rolling stock began to grow from the ten and fifteen-ton size for which the viaduct was originally constructed, Erie operating men seriously feared for its stability and even went to the length of gauntleting its double track so that two trains could not cross simultaneously. Better informed men returned the tracks to normal spacing and today Starrucca carries above 400-ton locomotives and trains weighing upwards of 6250 tons.

The Erie's Cascade bridge over the Delaware had the same date as the Kirkwood structure, and was located only a few miles east of it. The graceful wooden arch spanned a gulch 250 feet wide and 184 feet deep with steep sides of solid rock to which a thick growth of hemlock clung tenaciously. Engineers said no bridge could span such a ravine; but John Fowler, inventor of the then popular Fowler truss, insisted on attempting

the impossible. Begun in the spring of '47 and completed in the autumn of '48, his timber arch was constructed of eight ribs of white oak, two feet square at the center and 2x4 feet at the abutments. The wooden rods interlaced with iron braces gave a deceptive appearance of spider-web construction to this longest single span bridge in the world.

In after years, when Erie relocated its road so as to cross the ravine at a point further down by means of a solid embankment, the beautiful oak timbers of Cascade were torn down for firewood.

The Portage bridge across the narrow lip of the Genesee was constructed in 1852, at the height of the new trend to cast iron. The decision to use timber was made early, as was the plan to construct the bridge in 50-foot spans, so that any member could be taken out and replaced without disturbing the rest of the structure. But nearly two years was spent in assembling materials for construction, including 1,600,000 linear feet of pine timber and 106,280 pounds of iron, all of which arrived by canal and highway. In this summer of 1850, the railroad had not reached Portage and would not until two years later, when the *Orange* pulled four coaches across the new span.

The doom of almost every wooden bridge has been fire. On May 6, 1875, at four in the morning, a resident of Portage was awakened by the hoarse growl of flames and the crackle of burning timber. Before he could spread the alarm, the entire bridge had become "an open network of fire" which seemed to stretch across the river in the very shape of the bridge.

Fortunately, the Erie had a relief line, but haste in rebuilding the famous bridge was still of the first importance. Four days after the wooden structure had disappeared in flames, the contract was let for a wrought-iron structure to take its place, and on July 31st, thirteen weeks later, the new Portage bridge was formally tested. By 1903, the loads crossing the structure had become so heavy that the iron spans were deemed inadequate and the steel spans now in use were erected. Again, in 1944, the towers were remodeled and strengthened with the addition of 260 tons of new steel. In its progress from wood to iron to steel, the Portage viaduct is representative of many another railroad bridge.

THE importance of the truss between the fifties and the 1880's when steel came into general use, was due in large measure to the influence of Albert Fink. This son of a German architect who came to America in 1849 had an intensely practical approach to the problem of fabricating iron bridges. Like Bollman, he also had great facility. The two engineers, sometimes with Latrobe overseeing, worked by trial and error, building up their trusses in miniature from pieces of tin and wire and carefully testing strains and stresses. Out of these tests came the formulae they used for full-size spans. Fink's truss was an improvement on the Bollman design and was first used in 1852 in the B&O's treble-spanned crossing where the Tygarts Valley River makes its junction with the Monongahela. At the time, this was the longest iron railroad bridge span in the United States.

At the age of thirty, in 1857, Fink left the B&O to go to the Louisville &

Courtesy Erie Railroad

THIRD double-header passing over Portage viaduct after bridge was strengthened in 1944. First viaduct was replaced in 1875 by wrought iron spans, in turn replaced by steel in 1903

FINK BRIDGE

Courtesy Louisville & Nashville Railroad

CROWNING WORK of Fink's career was 400-foot center-spanned bridge across the Ohio at Louisville. Engraving, published in 1872, shows the waterfront as it appeared from the Indiana side. The crossing, now Pennsy-owned, was replaced only recently

Nashville. Within two years he had accomplished his most important work as an engineer. Seventy-four miles south of Louisville, the rail line extends over a wide gorge considerably above the Green River and at quite an angle to the main direction of the stream, twenty miles above Mammoth Cave. Many readers will have seen reproductions of the original Green River bridge. With the exception of the Victoria bridge at Montreal, it was the most celebrated iron structure of its time, a monument, as *Harper's Weekly* put it, "to man's intelligence and energy." It consisted of five spans, three of 208 feet and two of 288 feet, and rested on masonry piers 118 feet above low water.

The cost of the entire work was $165,000 and it was well worth the sum. For almost the first time in the history of bridge construction, the deflections caused by test loads agreed in every case with those previously calculated. In later years, Fink became general superintendent and vice-president of the L&N as well as the instigator of the powerful Trunk Line Association; but no work of his, with the exception of the 400-foot span across the Ohio at Louisville, ever outranked in importance that first Green River bridge.

In the seven years between Monongahela (1852) and Green River (1859), there were a number of notable bridges: CN's Victoria, Rock Island's first crossing of the Mississippi, the Southern's High Bridge, Pennsylvania's Allegheny and the Niagara truss built by Roebling. In a sense, the history of each of these crossings may be said to be continuous, for each bridge has since been replaced, sometimes once or twice or, as in the case of the famous Niagara suspension, three separate times.

This latter bridge, the first to connect Canada and the United States via the Falls of the Niagara was, first, a suspension; then a cantilever; and, finally, a steel arch. Roebling's bridge was completed in 1851 and was among the first successful railroad bridges of this type. The Michigan Central joined with Canada's Great Western in operating across this border bridge into Detroit. Already, on the American side, a canal joined Lake Michigan with the Illinois River at Chicago. When the canal was replaced by rails laid by a number of short lines in upper New York State, the entire Mississippi Valley became tributary to eastern railroad magnates. The Niagara bridge was a vital link in this rail empire.

Up to 1847, commerce between Canada and the United States was strictly via water trasport. In that year a primitive suspension without stiffening trusses and for passenger use only, was erected below the Falls. The passengers, most of whom made the continental crossing only for the thrill of the thing, were conveyed across in pulley-controlled baskets. Roebling's bridge, completed in 1855, was built for railroad traffic. Masonry towers held the suspension cables which were supported by a stiffening truss composed of wooden beams arranged to produce rigidity and leverage powers. By 1878, the iron wires in the suspension cables were found to be corroded and the anchorages in need of repair. Two years later, Leffert L. Buck stiffened the trusses with steel. The wrought iron and steel cantilever which replaced the suspension in 1883, utilized Roebling's towers.

Built in eight months from de-

signs made by C. C. Schneider, the 910-foot bridge was considered the engineering marvel of its day. Each cantilever measured 395 feet and was coupled with a suspended span of 120 feet in length. In 1900 the cantilevers were strengthened to carry heavier loads; but it was impossible then to foresee and provide for the tremendous increase in ton weight per car, per train, which followed in the next quarter of a century. The steel arch erected in 1924, and designed by Ibsen, was set up a short distance from the site of the old structure, and has a total length of 1640 feet.

The arch span is 640 feet from center to center, and the 100-foot approach on the Canadian side is balanced by a slightly longer approach on the U.S. side. The remaining footage represents connections over the streets on both sides of the river. Designed for Cooper's Class E 70 loading, the solid deck floor carries two tracks laid on stone ballast and is a spandrel-braced arch with parabolic bottom chord and horizontal top chord. The rise of the arch is 105 feet, to a total height of 125 feet. The trusses, divided into sixteen panels, each forty feet in length, are designed as a three-hinged arch to carry all the dead load. Each half of the arch span is anchored at each corner, to the rock bluffs of the Niagara gorge by heavy steel plate girders permanently concreted inside chambers tunneled out of the rock at depths of approximately a hundred feet on each side.

The new bridge was completed in twenty months and opend for service on February 16, 1925. Michigan Central's Number 1, the *Mohawk,* was the first train across the steel structure which marked such an advance over the wooden-trussed suspension of 1855.

Neither the cantilever of 1883 nor the present steel arch occupy the same spot as the Roebling bridge. That position was pre-empted in 1896 by Canadian National as the site for a double-deck steel arch. This bridge was completed on September 24, 1897, without interruption to traffic, the old bridge serving its regular uses until the new one was completed. The sustaining strength of the arch is almost six times that of the former bridge; consequently, it has not yet required replacement.

Steel was still a long way in the future when Rock Island crossed the Mississippi in 1856. That same year the Lexington & Danville was beginning its iron High Bridge over the Kentucky and northward at Pittsburgh the Pennsy was dealing in wood as it crossed the Allegheny with a combination arch and Howe truss, which was to be replaced with a combination of wrought iron plate girder and lattice truss spans in 1865, and by a still stronger double-deck structure in 1902.

Today's High Bridge, a part of the Southern's system of trackage between Lexington and Danville, is the tallest railway bridge over a navigable stream in this country, 1230 feet long and 308 feet above low water mark. The earlier structure, thirty-one feet lower, was the highest railway structure in the world and the first cantilever in the United States when it was completed in 1877 by C. Shaler Smith. This was twenty-one years after General Leslie Combs of Lexington built the towers and strung the cables for the Lexington & Danville's Kentucky River crossing. Combs' bridge was halted by the catastrophe of the Civil War, which

brought all permanent construction to an end for the time being. Seven years later the Cincinnati Southern acquired the unfinished line of the Lexington & Danville. The suspension design was not favored by the new directors and Smith's cantilever

Courtesy Southern Railway

HIGH BRIDGE, first cantilever on American continent—excepting highway bridge erected in 1870 over Bulkey River Canyon, B. C., by Hagewilget Indians who used logs and telegraph wire abandoned by Western Union's Alaska Extension. Combs' towers show at right, above

was substituted. The bridge in use today, likewise a cantilever, was built on the same foundations as the old and without interfering with traffic.

The old towers remained standing until 1939. When Cincinnati Southern bought the L&D right-of-way, it secured only the land on which the towers stood. Rising to tremendous heights above the 300-foot palisades bordering the river, these monoliths had become the property of a local lawyer who attempted to sell them to the railroad. The managers refused to buy, and so for years they stood like guards over the Kentucky cliffs. Legend had it that a quart of fine bourbon was sealed into the cornerstone of each tower. The construction forces who razed the towers in 1929 swore the whisky had disappeared long before; in 1911, to be exact, when the earlier cantilever was replaced. With the dismantlement of the towers, double track was laid across the bridge.

LIKE the Pennsy, Rock Island stuck to wood when it flung across the Mississippi the first railroad bridge and almost the first bridge of any kind to span those waters. Only two years before, the

Mississippi & Missouri had laid rail across Iowa from Davenport and thence to the bluffs of Rock Island. Earlier, the Michigan Southern & Northern Indiana, with John B. Jervis in charge of construction, had begun to move from Toledo to Chicago. A connection for the two lines across the river was imperative; and the difficulties seemed insurmountable. The Illinois-Iowa state boundary lay in mid-channel. Eleven years earlier, Rock Island had made connections from Council Bluff to New York. Therefore, the traffic running east and west across the Mississippi had become equal in importance to the older water-borne traffic passing up and down the river.

The first survey of the site for the future bridge was made in 1837, by Robert E. Lee, then a lieutenant with the U.S. Topographical Engineers. When in 1853 Jervis established the location of the bridge by Lee's soundings and surveys, there were vigorous protests from the river interests. Every effort was made by the railroad to offset the effect of these protests. Their choice of a location represented the minimum of hazard to both interests in that it was the shortest available route for the crossing and the draw span was located directly over the steamboats' customary channel, with two fixed spans on the Illinois and three on the Iowa side. Suspension chains were added to reinforce the fixed spans.

The spans were of the Howe truss type. Howe, it will be remembered, had patented his design in which iron rods were substituted for wooden posts in 1840 and in 1846 had improved upon the pattern with the addition of wooden arches. His brothers-in-law, Daniel, Amasa and Andros Stone, were in the construction business; and when in 1851, in conjunction with Lucius B. Boomer, Andros opened a firm in Chicago, he held the territorial patent rights to the Howe truss. Consequently, when Stone and Boomer were awarded the contract for the superstructure of the Rock Island bridge, the perpetuation of the Howe truss west of the Mississippi became a certainty.

No photograph extant today shows the webbing of the original bridge, but the plans are filed with the U.S. Engineer Corps and the Howe design is evident, except for the addition in each truss of an extra arch, so that four arches instead of two add rigidity and strength to each span, after the manner of the Burr truss. The number of fixed spans was five, each of them 250 feet in the clear; while the draw span, then the longest in the United States, measured 286 feet, making a total length of 1581 feet. The stone piers rested on solid rock, thirty-eight feet above the river bed, with a cutwater or starling attached to the upstream face of each pier to cut the ice as it floated down. The plans called for a covered bridge, but it is virtually certain that no roof was ever built.

The superstructure was completed on April 22, 1856, and the bridge opened for service without the usual celebration. This was due to the unfriendly attitude of the river interests. The enmity between rail and steamboat flared high less than a month after the bridge's inauguration. On May 6th, the *Effie Afton*, Louisville - New Orleans packet, north-bound from St. Louis on her first trip, rammed the bridge, caught fire and burned. The boat people brought suit against the railroad bridge company in a trial which has remained famous, both for Abraham

Courtesy Rock Island Lines

OLD PRINT of the Rock Island's first bridge over the Mississippi is taken from a printing by W. H. Hinton of the first train crossing on Tuesday, April 22, 1856

Courtesy the Reading Company

SWINGING new girders directly from railroad cars to final position on the masonry of Schuylkill River bridge on Reading's Lebanon Valley Branch.

Lincoln's connection with it on the side of the railroad, and for the precedent it established.

Lincoln, then seven years from the presidency, disproved the steamer company's argument that the force of the water running near the bridge had "thrown" the *Effie Afton* against one of the piers by the graphic and telling expedient of throwing a stick into the water. When the current swept the stick away from the bridge, Lincoln argued that far from being drawn to the piers by the action of the current, the boat's skipper had deliberately rammed the bridge upon orders from the steamship company employing him.

The case did not come to trial until September of the following year. East and west travel, via the railroads, Lincoln contended, had "its rights as well as that of the north and south . . . it is in evidence that 12,586 freight cars and 74,179 passengers have already passed over this bridge. Navigation was closed four months last year and during that time . . . this railroad and bridge were valuable." Having made his point, that the railroad bridge was actually more vital to growing country than the river, he passed on to a prediction that in the future far more traffic would cross the continent on the railroad bridge than would ever pass beneath it on the breast of the river.

Courtesy Canadian Pacific Railway

DECK ARCH over Stoney Creek, B. C., was completed in 1929 to replace the three-hinged steel arch of 1893. Original bridge was designed by C. C. Schneider; was said to be the world's highest wooden structure

Despite the vigor and justness of Lincoln's argument, the jury failed to agree. Upon their discharge, the Congress of Illinois instructed the Committee on Commerce (forerunner of our present ICC) to investigate whether or not the bridge was, in fact, a serious obstruction to river navigation. The Committee's report, based perhaps on the U.S. Topographical Engineers' findings in 1857, was adverse to the railroad's interests. Numerous defects in location and construction were cited to bolster this report. The piers, not quite parallel with the current, created numerous eddies and boils, mak-

ing the Iowa side of the draw unusable.

The case came up for trial again when James Ward, a St. Louis steamboat owner, sued for the removal of the bridge. Judge John M. Love, of Iowa's U.S. District Court, rendered a decision ordering the Rock Island to raze the three piers and their superstructure on the Iowa side of the channel. Only an appeal to the U.S. Supreme Court, which reversed the lower court's decision, saved the bridge. Rock Island's final victory set a precedent of unlimited value to the railroads for the future: "Common carriers have the right to bridge navigable waters."

Nevertheless, the original bridge which had survived three bitter lawsuits, was soon to be razed. It had already grown too light for the heavier locomotives and trains which passed over it when, in 1866, the government decided to occupy the whole of Rock Island for military purposes. The C&RI right-of-way passed over the center of the island inconveniently for arsenal workers and vehicles from the Iowa side.

The Secretary of War negotiated for a new right-of-way, well south of the old one, and Acts of Congress passed in 1866, '67, secured the removal of the Rock Island bridge and of the similar crossing over Sylvan Water known as Slough bridge. Besides the bridge's growing inability to withstand the live loads now hurtling through its wooden superstructure, the piers had proved to be insufficiently anchored. Ice floes had frequently thrust them out of place, breaking the truss chords; and in 1868 high winds had blown the draw span into the river.

After sixteen years of service the old structure was replaced by a double-deck iron bridge for joint rail and highway use. The location was the same as that of the present steel structure. The new iron bridge, begun in 1866 and completed in 1872, kept to the Howe truss plan, but without the separate arches employed in the first bridge. The trusses were also deeper and heavier in construction, as befitted the new material. Plans for the second bridge were destroyed by the Chicago fire, and it has been claimed that the actual designer of the bridge is unknown; however, an advertisement for the Baltimore Bridge Co., appearing in 1889, speaks of "our patent wrought-iron viaducts and trestles such as the Rock Island Bridge across the Mississippi, built for the United States." C. Shaler Smith and Benjamin Latrobe were, respectively, chief engineer and assistant engineer for this company. The great names have a way of reappearing.

Interestingly enough, Smith was also connected with the Eads' bridge. During the last twenty years of his life, he built bridges as far afield as Australia and Peru, but no structure attributed to him is more impressive than the Canadian Pacific bridge above Lachine Rapids in which the cantilever principle is employed upon the design of a deck bridge except over the main channel where a through span was necessary to admit the passage of steamers. Here, the depth and strength of the river current was such as to make impossible the use of scaffolding. The clear headway necessary for steamers was provided for by "flying cantilever" spans, or two deck flanking spans and two central through spans of 408 feet each extended 1355 feet out over the main channel. Curving the top and bottom chords of the cantilever spans

Courtesy Canadian Pacific Railway

OLD single-track bridge over the St. Lawrence above Lachine Rapids was built in 1886. Later reconstruction for double trackage utilized the old piers for the downstream spans

upward from the flanking spans and the bottom chords upward from the central pier made possible the necessary change from deck to through span. The joints of the cantilever spans were riveted up so that they act as cantilevers for dead loads and as continuous girders for live loads.

The bridge, commenced in March, 1886, was not completed when Smith died.

BETWEEN the 1870's and '80's, truss bridges continued to fail at the rate of twenty-five a year. The stone arch, if properly supported on solid foundations, will last for centuries with practically no upkeep, and the same is true of modern reinforced concrete. But cast iron, once greatly favored for its high compressive strength and resistance to corrosion, snaps without warning under too great tensile strain. Wrought iron came into general use about the middle of the last century and was hailed with joy because its manufacture as a commercial material permitted the use of easier bridge types than the arch. Numbers of wrought iron bridges of fifty or sixty years ago are still in good condition; but wherever they have been subjected to the enormous increase in live loads represented by the modern locomotive, it has been thought wise to reinforce them with steel.

The need for longer spans has increased, too, with the years; and the trend from mild steel, with its ultimate breaking strength set at a limit of twenty-eight to thirty-two tons per square inch, was contemporaneous with this need. High tension steel is developed by the addition of varying percentages of nickel, chromium or other metals, whereby a corresponding increase in working stress and compression and shear is obtained. The suspended spans of the cantilever-type Quebec bridge, as completed in 1917 after two collapses and a loss of nearly a hundred lives, are of nickel alloy with a working stress of 10.5 tons per square inch in tension. Hell Gate with its main members of high carbon steel has a slightly lower working stress.

Steel did not come into general use in the United States until 1880. Two years previously General William Sooy Smith had spanned the Missouri at Glasgow, S. D., with the first all-steel bridge (2700 feet) ever erected in this country. Despite the almost frenzied predictions of immediate failure, the Alton's Glasgow bridge lasted ten years before it had to be rebuilt. The transition to steel had begun with the gradual practise of using less and less cast iron and more and more of the wrought product. Then the Ashtabula tragedy brought it home that the cheaper sorts of construction, hastily put up by rule-of-thumb engineers, were dangerous and, in the long run, uneconomic. When the railroads, especially the Western lines with big rivers to cross as they moved eastward over the Columbia, the Illinois and the Missouri, demanded scientific testing of bridge materials and meticulous blue prints, then the great period of bridges had arrived. They built again and again, over the deep gorge of the Niagara; built at Cairo, at Thebes, at Memphis and at St. Louis; and, eastward, where the first railroads had made shift with converted highway bridges, they finally flung steel over the Hudson to join New England to the rest of the nation. Even the East River succumbed, first to the suspension and then to the cantilever and the arch.

Courtesy Santa Fe Railway

THIRD bridge across the Colorado near Needles and Topock, Arizona, was completed in 1944, is double-tracked. Name, Topock, is Mojave Indian for "water bridge." In foreground, the Santa Fe's Red Rock bridge

Roebling's Niagara bridge, the first of its type ever built with stiffening trusses, had proved that it was possible to fling a roadway capable of carrying the weight of trains and locomotives across chasms that could not be bridged in any of the acceptable ways. On the day when Great Western's 28-ton engine pushed over the gorge from Canada, hauling a gross weight in freight cars of 368 tons, Roebling made his prediction for steel: "Bridges of half a mile span may be built, using iron for the cables with entire safety. But by substituting the best quality of *steel* wire, we may nearly double the span, and afford the same degree of security."

This was the same year (1855) that Bessamer announced to the world his process for turning common iron into steel by burning out the greater part of carbon, sulphur and phosporous. Ten years later, the first unimported steel in America came from the Chicago Rolling Mills.

Nevertheless, Roebling was still thinking in terms of iron when he laid his plans for the East River suspension before Brooklyn's civic leaders. It was his son, Washington, who proposed the use of steel wire instead of iron for the cables. His suggestion came from Germany, where he was studying the new pneumatic method of sinking caisson foundations and where steel was already an accepted medium for heavy construction. Back in New York, the elder Roebling made a different but exceedingly important proposal: that railroad tracks laid along the upper deck would pay the entire cost of the bridge, which would be able to bear the weight of 18,700 tons.

His plans included a system of inclined stays radiating downward from the tops of towers to the floor of the span, with iron trusses running the whole length of the floor. The New York terminus was to be City Hall Park and the Brooklyn one, Bridge Street. The final detailed survey was made in the summer of 1869, after Boss Tweed had decreed the municipal underwriting of the project. Then, on July 6th, while locating the Brooklyn tower, Roebling's foot was crushed by a ferry boat ramming the Fulton rack. On his death a few days later, his son succeeded him in control of the bridge project.

By January, 1870, the site was cleared and the builders were ready to begin excavation for the towers. Thirteen years were to pass before the bridge could be completed.

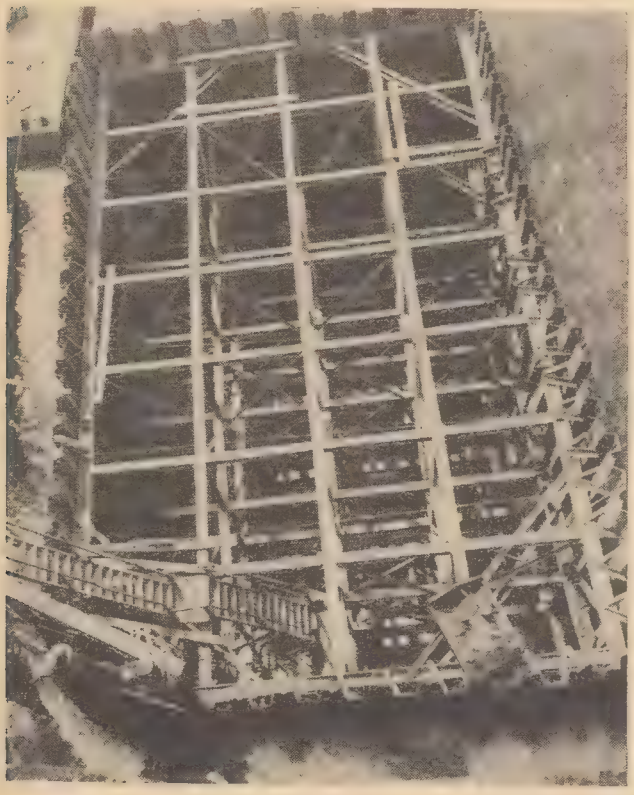
Before that date, 1883, the Katy would have spanned the Missouri near Kansas City with a great swing draw hinged between six fixed spans and then have begun to rebuild the superstructure to bear the increasingly heavy traffic that passed over it. The Santa Fe would have reached to Chicago in two years' time, crossing the Missouri on the Sibley bridge, the Mississippi on the Fort Madison and the Illinois over a three-mile structure, and then have begun to span the Colorado with the first of its three Topock bridges. The first steel crossing at Glasgow would be ready for abandonment and James B. Eads' arch at St. Louis would be nine years old, with its reputation as an all-steel bridge firmly established despite the published fact that iron was used in conjunction with the steel tube members in its arch construction.

The Eads' arch provided a gateway to the west for St. Louis traffic. Such a gateway had been contemplated for thirty or more years when,

FOUNDATIONS of four river piers of B&O's new Kanawha are all within pool formed by Gallipolis Dam in the Ohio, twelve miles downstream. Piers were built inside steel-braced coffer dams driven into shale and rock underlying the stream bed. *At left*, excavating shale 50 feet below water for Pier 14. This coffer dam is 45x76 feet, with excavation into footings 30x60 feet. Keeping one coffer dam dry was big task, required removal of 1¼ million gallons of water, not counting leakage during the pumping

Courtesy Baltimore & Ohio Railroad

following the Civil War, two companies were organized for the construction of a bridge at East St. Louis. Eads' company soon absorbed the other, headed by Lucius B. Boomer of Chicago—the same Boomer who with Andros Stone had built the Rock Island truss according to Howe's plan. Eads' design called for a central span 500 feet long, with an elevation of fifty feet above river. It was necessary to sink the masonry



COFFER DAM for Pier 13, *at left*. Material used was deep web steel sheet piling, braced against water and earth pressure by horizontally arranged beams, columns and angles. Pressure near bottom was more than a ton per square foot, and here the bracing planes were spaced only five feet apart. Piling extended into shale and rock 42 feet below pool surface. Note heavy-duty, 12-inch electrical pump for removing leakage beside stairway into levels

MAMMOTH 12-ton concrete piles were called bumper crop of the corn-growing Indiana lowlands during the building of L&N's new Henderson bridge. *At right*, workmen cutting square and belt key ways on piers in midstream. Coping is being removed to make room for concrete encasement and vertical extensions. The main river crossing is 3,162 feet long, consists of five through-truss spans of Warren type over the channel, two girder deck spans on the Kentucky shore and one deck-truss span on the Indiana side

Courtesy Louisville & Nashville Railroad

for the two abutments and piers through the deep level of river sand to solid rock, each of the four at points of varying depth. The west abutment, fifty-five feet below high water level, could be laid by means of the old-fashioned coffer dam; but the west and east piers and the east abutment, 135 feet below high water mark, had to be sunk with the aid of caisson was built up and increased in weight, the thick iron plate drum sank gradually into the mud of the river bed. In order to keep the working chamber free of water as it sank, air pressure was increased. Since the pneumatic shell was new in this country, little was known of the effects of compressed air on the workingmen. Shortly, a mysterious dis-

compressed air. Compressed air caissons—another offshoot of the railroads' demand for stronger bridges with secure foundations—were patented in England in 1830 for the invention of Sir Thomas Cochrane; but their first use in the United States was delayed until 1869, when the depth of Eads' excavations made use of the new method a necessity.

As the masonry resting on the ease known as "the bends," from its characteristic attack on the muscles and joints, began to afflict the sandhogs. Thirteen men died of the caisson sickness during the masonry construction.

The superstructure consisted of three steel arches, supporting two railroad tracks, and an upper deck for highway traffic. The arches, completed in August, consisted of four

equal ribs placed side by side at intervals of 16.5 feet, twelve feet and 16.5 feet. Diagonal steel ties, wrought iron tubular struts and an upper truss between the two roadways formed the lateral or wind brace. Individual pieces could be replaced without disturbing the bridge as a whole.

When the arch was formally opened for traffic and dedicated by Ulysses S. Grant on July 4, 1874, it was predicted that the structure would give service for 150 years in the future. There were some who thought that the prophecy had no other basis than the firewater to which the General frequently owed his oratory, but seventy-five of those years have passed and so far Eads' bridge has required no more than the usual maintenance outlays for repair and upkeep.

BACK in the East, Washington Roebling was using caissons like vast diving bells with a roof and sides but no bottom. Slowly, the sandhogs excavated the material below them as the caisson sank under the weight of the masonry piled in successive courses upon its roof. The rate of descent averaged less than six inches a week before dynamiting was resorted to. The highest pressure reached in the Brooklyn airchamber was twenty-three pounds to the square inch—not enough to produce any serious cases of the bends.

The foundations for the New York tower were more difficult. Layers of quicksand were encountered, and the depth to which the caisson must sink to solid rock was nearly twice the depth required on the Brooklyn side. The interior of the nine foot six inch working chamber on whose roof a weight of 53,000 tons was gradually coming to rest, was often livid with the flames of sensitized gaslights leaping in response to the ring of a hammer or even the sound of a human voice. Bass became a thin treble in the rarefied air and pitch was so highly raised that a whistle was inaudible. Even the necessary giving of orders and replies was extremely fatiguing. Then the dread caisson disease began to strike.

The first fatal case occurred at seventy-five feet below the surface of the river, with the pressure at thirty-four pounds. It would be six years before the nature of the disease was known and physicians could warn engineers that the danger was not in the amount of compression within the chamber but in the rapidity of pressure reduction. Roebling himself was spending more hours within the caisson than anyone else. In the summer of 1872, after fighting fire inside the working chamber for twenty-four hours, he was carried out, insensible. He rallied and returned, only to have the agonizing cramps strike him down again. For the remainder of his life, from the age of thirty-five until his death in 1926, he remained hopelessly paralyzed.

But the work on the bridge continued. From his bedroom window in Brooklyn Heights, the engineer watched the great towers rise to completion. By 1876, the New York tower was done. The first wire—not iron but steel, as Washington Roebling himself had suggested eleven years before—was taken across the river in a scow and raised on August 14th, on the New York side. Master Mechanic E. F. Farrington, who had been the first to swing across the elder Roebling's causeways at Niagara and at Cincinnati, made the ini-

Courtesy Great Northern Railway

THOROUGHFARE for trains for more than 60 years, the old St. Paul, Minneapolis & Manitoba stone arch at Minneapolis is now Great Northern owned. ***Below***, from windows of ***Oriental Limited*** St. Anthony Falls is visible

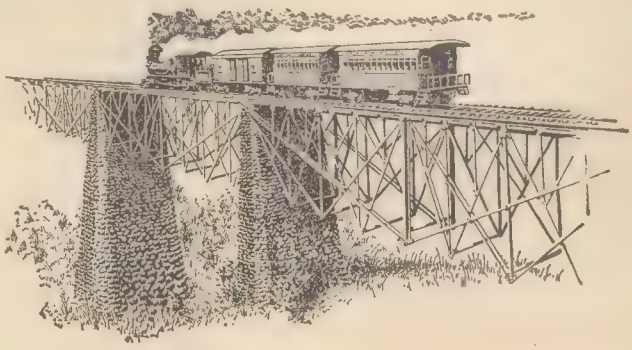
tial trip across in a boatswain's chair attached to running gear that slipped along the steel cable. The nineteen wires which went to form each cable were crucible cast and galvanized as a safeguard against rust. On October 5, 1878, the last wire was drawn across.

Workmen immediately began to set up the floorbeams. They were unlike any designed before, built up to resemble a triangular lattice girder, and immensely strong though they were less than half the weight usual in such beams. This was in the latter part of 1878. After three more years, the bridge was still not finished, and Roebling had to report to the trustees that 1000 additional tons of steel would be needed to strengthen it for railroad service.

Much of the delay had been caused by fraud on the part of the wire manufacturer, but in the anxiety and heat of the discussion that followed Roebling's request for added supplies and his frank statement that the four middle trusses must be raised and the posts strengthened, a political faction was aroused to attempt to oust Roebling from his position. The support of the American Society of Civil Engineers won public confidence in him and the great project. Immediately afterward, the vaulting stone arches of the New York approach—it had taken five years to complete both approaches—were finished, and the slanting stays and vertical suspenders of the superstructure were lashed together where they crossed. The perfect diamond-shaped spaces forming the open meshes of the cable-borne span combined with the massive upward thrust of the great Gothic towers, made this seem to almost every observer the most beautiful of bridges on the day of its opening for traffic in 1883.

Below the bridge, five ships of the North Atlantic squadron lay at anchor, surrounded by hundreds of smaller and less important vessels. At the moment when the procession led by Grover Cleveland and the Dandy Seventh Regiment reached City Hall Plaza and wheeled left toward the New York approach, the thunder of naval guns joined with the roar of a heavy cannon on Governor's Island. Then, crash by crash, came the staccato of artillery from the Navy Yard in Brooklyn punctuated by guns on the summit of Fort Greene. Boat horns and steam sirens screamed and blared above the cheers of the people. And then, while the bridge master in his lonely window on Washington Heights watched and listened alone, the silver chimes of Trinity Church rang out clear and sweet into a sudden silence. The man in the window put down his telescope. Perhaps that sound seemed to him as far removed from the hoarse clamor below it as he himself was from the loud happiness roaring around the bridge. The age of steel had come at last.

(Concluded in the next issue)



BACK IN THE DAYS . . . . . Harry C. Temple

"Nice fella . . . ."

Taylor Round House

Los Angeles' Second Terminal Owes Its Existence to Big Articulated Mallets

PHOTO STORY
by
H. L. KELSO

Thanks are due Gerald M. Best for technical data used in this feature

A FEW YEARS after the erecti n of Alhambra Shops and Roundhouses, terminal facilities at the Alhambra plant proved inadequate both as to number and size of locomotives in use. In 1930 the new Taylor Round House came into active existence. With a total of 670 shop and roundhouse employes servicing an average of above 77 steam engines per day, Taylor is the busiest of the four engine terminals on Espee's Los Angeles Division. Typical example of big power groomed and checked at Taylor is Mikado 3202, *below*. F. H. Wismer, maintenance electrician, and Earl Prothro, ICC inspector, have scaled her boiler sides for a look-see at the steam generator

FEATURE of motive power check, ***above***, is a big 3-cylinder 4-10-2. Boiler pressure for pop valve number 1 is set for 225 pounds; number 2 lets loose at 227 pounds and number 3 adds to the din when the pressure soars to 229 pounds. ***Below***, old Consolidation 2547 on the merry-go-round for her first ride after receiving a shiny new coat of black paint. View shows the southeastern quadrant of the house. The two covered segments rate nine stalls each, and are separated by two outbound engine tracks

BUSIEST WORKER at Taylor is the little yard goat. Photo from Gerald M. Best, *above*, was taken on the day 221 was retired and steamer 567 took over. *Below*, wipers are grooming a red-and-silver passenger unit for its eastbound run on *The Golden State*. Passenger jobs have only one control end. Present Diesel maintenance work is carried out in temporary quarters. New servicing facilities are now under construction. *Right*, an early Class AC, Number 411, with air compressors mounted on the boiler side just behind the first set of cylinders. Later model AC's have their air compressors mounted on the smoke box front—between the stacks and the tender! The inspector has tapped a main rod, is listening for the flat tone which indicates a metal fracture

HEAVY-DUTY freight engines lined up for inspection are the 4109, an early Class AC originated by Espee, and the 5035, one of the 4-10-2s built by Baldwin between 1925, '27. This SP-3 dates from the latter year. Characterized by a third cylinder arrangement, the SP-1s, SP-2s and SP-3s are fine steamers, the best-liked on the road next to the GS 4400s. Only 48 of them are now in service, as the 5037 blew in at Bosque, Arizona, in '46 and has not yet been replaced. The cab-in-fronter *below*, posed for this pic in '46, before Espee began to apply aluminum paint to all locomotive front ends. She has just had a going over by staybolt men and pipefitters; the house blower has been connected and soon 4105 will head an eastbound time freight

CALLED for an Extra West, Number 4125 takes on protection against rain and smog at the sandhouse before heading out for a run up the coast route. One of the many Moguls still in service, engine 1725, *at left*, is assigned for a sugar beet extra on the Firestone Park subdivision

STUDY of old 567, as fancy a goat in the steam bracket as you'll see anywhere. She replaced 221 in February, 1940, after 37 years as Number 1108, and has since averaged 120 roundhouse moves per day except for a short rest for overhauling last year. Transition to Diesel power will cause a drop in the number of engines handled

SUNDAY SCENE at Taylor, below, when space between the engines and the turntable is utilized for temporary storage of the locals which make no Sabbath Day runs. The wye is too short to hold the big 4-8-8-2s and the shop goat at the same time, and sardine packing is resorted to only in the case of the shorter engines. Here the 567 is backing onto the table at the end of a job

Bert Lardner Couldn't Decide Who Did More Damage, Thieves or

Too Many Cops

By RAYMOND HULL

THE blubberly fat chief of the Cape Haddock police force stared across his desk at Bert Lardner, Pullman conductor and the company's summer agent on the Cape. "What's been stolen?" asked the chief, reaching boredly for a pencil, his pale bulging eyes, as expressionless as those of a codfish.

"Six sheets and pillow cases, and two pillows," replied Tubby Lardner, lowering his two hundred pounds into a wooden chair. "Two blankets, three cuspidors, some white coats and a berth ladder. A pail and a mop."

Chief Wilkins shrugged. "Stuff like that's hard to trace; it would be

in somebody's house. What do you expect me to do?"

"Good grief!" blurted the conductor. "You must at least have some idea about the petty crooks in town most likely to steal from Pullman cars. And we could stand a little policing after dark."

Wilkins belched wholeheartedly. "I'll have the night cop on that beat look in the yard once in a while," he said. "Seems to me this is railroad business, though. That's what the road pays its special bulls for, ain't it—to guard its property?"

"The road pays taxes, too," grunted Tubby. No use in telling Wilkins that the road was too short-handed to assign men just to guard sleeping cars laying over in the yard, when each car carried its own porter. That confession of weakness would tickle Wilkins, who resented the very existence of the railroad police because they had more than once proved him to be something of a

bungler. The chief retaliated by cooperating with them as little as he possibly could. His promise to have the East Side cop look in the yard was a joke; that officer might get around there twice a night. Wilkins had offered no help, actually, and he knew it. It was the old runaround.

There were times, reflected Tubby while tramping down the courthouse stairs, when this summer agent's job was no cinch. Not only did he encounter some peculiar and difficult problems, but he usually had to work them out unaided. That was why the company had stationed him on the cape; to handle all the vexing headaches which formerly had kept plagueing the brass hats in Terminal City, three hundred miles away. And that was why Tubby had no intention of wiring District Superintendent Trumbull for help. The Old Man would stir up the railroad cops, all right, but he'd also start wondering why in hell Lardner couldn't handle things himself.

Among other things, the super would tell Bert to make the porters guard their cars. Well, they'd been doing that, which meant that everybody had been losing considerable sleep; and still equipment kept disappearing, bit by bit. Except for the last two nights, when Tubby had prowled the yard from dusk to dawn. And he couldn't keep that up; he was tired enough to sleep the clock around now, and he still had a day's work ahead of him.

The conductor went to his small office on the second floor of the depot. He had scarcely started on some paper work when in came his friend Brakeman Shorty Joe Mallin, baldheaded and grinning broadly.

"You sure look pooped!" commented Joe. "Seen the cops?"

Bert nodded glumly. "No help from Wilkins, either. It's a vicious circle, Shorty. I don't dare stop guarding the cars. Yet with me watching, the crook ain't likely to come around so I can catch him. I don't know what in hell to do, to tell you the truth. I'm too dead tired to even think."

"Maybe Elmer'll grab your crook for you," grinned the brakeman. "He said he was working on the case."

"Now good grief! That's all I need; to have that crazy kid gumshoeing around!" The conductor sighed heavily.

Elmer Bodkins was the newsboy who worked the local trains. Seventeen, and recently out of the county orphan asylum, he had quarrelled with his guardian appointed by the authorities and then had obtained the railroad job. He had also adopted Tubby as his mentor and frequently asked his advice, having made the Pullman office something of a hangout. Bert had suggested to the boy that he continue his education by means of correspondence courses, whereupon Elmer had promptly subscribed to a course in how to become a detective. Now he was memorizing the fifth lesson, on shadowing suspects.

Tubby scowled worriedly. So the kid had decided to do some real detecting. In that case anything could happen, because Elmer was very impulsive. "Maybe I can talk him out of it," he muttered hopefully.

"Think he'll listen?" queried Shorty. "He's kind of headstrong."

The conductor shrugged. "You never can tell. What that kid needs is some real schooling, instead of these phony courses." Tubby's chin dropped onto his chest and a minute or so later, he began snoring. He

would not have relaxed so thoroughly had he known how the thief was to plague him later that day.

ONE of Bert's most important duties was his last minute inspection of the *Cape Haddock Special,* just before the train was moved from the storage track into the depot to receive passengers. This all-sleeper express, arriving from Terminal City each Saturday morning and leaving the cape the following night, was the widely advertised pride and joy of the Cape Haddock & Shoreline Railroad, and the surest way for Tubby to unpleasantly complicate his life would be to permit the *Special* to depart inadequately serviced and cleaned.

Therefore, when the conductor arrived in the last car and observed the condition of Sections One, Three and Five, the bottom all but dropped from his stomach. True, the porter had spread the three upper and three lower berths properly, with no careless wrinkles. But what worried the conductor was the absence of the green curtains which should have been hanging from the berth rods. For an instant, Tubby permitted himself to hope that the porter had neglected to hang them, until he reflected that Potter was not a careless man, and anything as bulky as these drapes when folded would have been in plain sight.

This could be a calamity. With the entire train sold out solidly, and with no berths to spare, it appeared as though six passengers might have to go to bed right out in public.

The conductor whirled as Porter Judd Potter entered the car. "Your curtains!" spluttered Tubby. "Where in hell are they?"

"Huh?" Judd's eyes opened widely. "Hot damn! I hung 'em, cap, an' I wasn't dreamin', neither. 'Bout half hour 'go, 'fore I went out to eat. An' I locked both doors, too." Potter began searching worriedly through the Pullman, muttering, "Now don't tell me that no-good thief's got into my car, not in broad daylight!" Judd glanced into Drawing Room A and his jaw dropped. "Ain't just curtains, neither, Mr. Lardner," he gasped, pointing a trembling finger. "Damn if somebody ain't took my sofa seat. Now they's takin' away the cars, a hunk at a time."

The six-foot sofa seat served not only as a settee but, equipped with inner springs, it could also become a third berth in the drawing room. Beneath where it should have rested, the storage space yawned openly and untidily. Only an extremely meek and uncomplaining person would occupy this room without squawking to the heavens; and Cape Haddock passengers were not noted for their meekness.

"Nothing we can do about that seat," groaned Tubby. "There's no sleeper laying over tonight that I can borrow from. Just have to kid your people along, best you can. About those three sections, though, you can use your porter's curtain, and borrow one from another smoker. They'll be dirty and patched and they won't be numbered. Might not even fit, but they'll have to do."

"They sure won't fit!" grumbled Judd.

Porters on this run were entitled to a three-hour off-duty period, during which they usually stretched out on the smoking compartment sofas behind old and salvaged curtains, and it was these drapes that Tubby intended to substitute for the stolen ones.

"Sure look crummy!" announced the porter, returning with his curtains. "And I ain't expectin' to enjoy this trip none tonight, not nohow."

Tubby made his way thoughtfully back through the train. It was almost uncanny, the manner in which these sizeable objects had vanished in broad daylight, with the crew in the yard and porters in some cars. And why would anybody want berth curtains and that sofa seat, anyway? Couldn't sell 'em. Bert had not found the answer when he unlocked the door of the head sleeper and heard a voice in the smoking compartment saying shrilly:

"Stick 'em up! And no fooling about it, either."

For an instant the conductor froze. Then he eased the door shut. With his heart thumping, he tiptoed to where he could push the door curtain aside and peer into the room. He saw only one person; Elmer Bodkins, facing the long mirror in the toilet door and apparently threatening himself.

The tall scrawny newsboy wore a blue coat with silvery buttons and with sleeves slightly too short. Perched rakishly atop his mop of yellow hair was the uniform cap of the Interstate News Company. Elmer's suit needed pressing and his tan shoes needed shining.

"Good grief!" grunted Tubby, too relieved to be angry. "You trying to rob yourself?"

Elmer whirled and his narrow, sharp-featured face reddened. "Hi, Tub!" he blurted, waving a long black cigar with pretended nonchalance, while with his other hand he attempted to shove a bulky object into his pants pocket. "Nice day, ain't it, Tub, huh?"

"Hmm!" grunted the conductor, his eye catching the glint of metal. "What you got there, Elmer. Let's see that thing?"

"It's just . . ." Grinning sheepishly, the boy produced a nickel-plated thirty-two calibre revolver. "It's not loaded, Tub," he explained. "And I'll need it to catch your thief with. See! It's not . . ." Pointing the gun toward the double-paned window—closed because of the air-conditioning—Elmer pulled the trigger.

Flame spurted; the gun roared. Glass shattered.

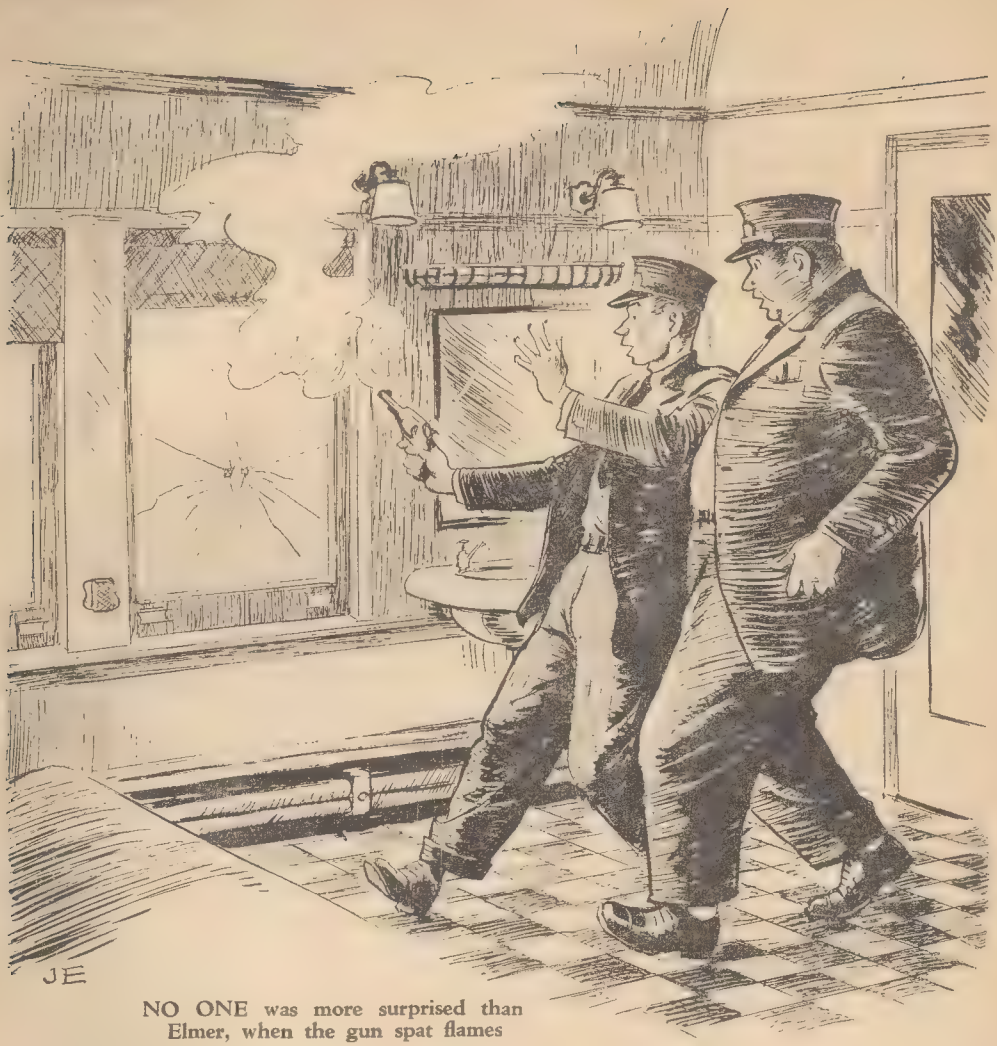
Tubby's ears rang and the acrid odor of cordite tickled his nostrils. "Now you give me that thing, quick!" he barked, and he nervously pocketed the weapon. Then he stared gloomily at the window, at the small hole through the precise center of both panes, from which unsightly cracks radiated in all directions. "Between you and that thief," he grunted, "if they don't move this train out of town pretty quick, there won't be a thing left of it to roll except the wheels. How can you be so dumb?"

Elmer had lost his aplomb. Now just a scared boy, all he could say was, "Gosh, Tub! Gosh!"

The conductor braced himself as the train jerked toward the depot. "After the *Special* leaves," he said, "I want to talk with you in the office. In the meantime, you keep your mouth shut about this shooting. You hear!"

As Tubby had hoped, the sound of the shot had been sufficiently muffled within the closed Pullman so that apparently no one outside had noticed it. His next half-hour was hectic, and he sighed with relief when Train Conductor Bill O'Rourke highballed the *Special* out of town.

Two men in Judd Potter's car had been quite indignant at being forced



NO ONE was more surprised than Elmer, when the gun spat flames

to occupy a room lacking a sofa seat, and their ire would undoubtedly last until one or both had written a forceful complaint to the office. And of course the spinsterish woman occupying Lower Three in that same sleeper most certainly would tell Mr. Trumbull how badly those nasty old curtains had fitted, and how the baldheaded man had peeked into her berth. As for the window, trust the yard office to get excited about the bullet holes and to notify the Old Man that somebody had been shooting up the car. Altogether, tonight the *Special* had not departed in good order.

"Be writing statements for a month," grumbled Tubby, trudging up the stairs to his office. He discovered Elmer studying his lesson on "Deaths Due to Direct Violence."

"That window," said Bert, sitting down at his desk, "is going to be tough to explain without bringing you on the carpet. Where'd you get this gun, anyway?"

"Hock shop," replied the boy, not looking at Tubby. "You see, Tub, I've got a hunch about these rob-

beries, especially after today, and I'm out to get the crook. I will, too, gun or no gun." Elmer turned appealingly to Bert. "I gotta do something big, Tub. To show everybody around here that I'm not just a dumb sadsack."

"Guess the rails do kid you a lot, don't they?" mused the conductor.

"I'll say, and I'm sick of it. Just because I'm a kid, I don't have to take their guff." Elmer's jaw set stubbornly. "I'll show 'em, before I'm through."

"They kid you because you take things so seriously," said Tubby, trying to recollect his own teen-age difficulties.

HE WAS no longer viewing Elmer as something of a nuisance, but as a kid with very real problems. No wonder he kept floundering and doing foolish, crazy things! So would any kid who'd been cloistered all his life in an orphan asylum, and then suddenly found himself loose in a world where the Devil took the hindermost. What made it harder for the boy was having no friends of his own age. Instead he had to work and live among men, some of whom were tough and blunt, and others too ready to laugh at anyone they didn't understand. No wonder the kid wanted some one to advise him, and no wonder he'd developed a sense of inferiority. Now Bert understood why Elmer smoked cigars he didn't enjoy, and why he so desperately wanted to do something spectacular.

"About that detective course," mused the conductor. "I guess you figured it would help you to be more of a man. That right? Yeah, I get it now. 'Course nobody can hurry up nature, and that's something to remember. Now let's see how we'll be able to fix that window report."

"A bullet hole will raise a stink, all right," said the boy gloomily. "And won't the rails haw haw! I'll never live it down. Elmer Bodkins, the great detective, didn't know his gun was loaded. So he shoots up a Pullman. Boy! Won't they ride me about that!"

"Maybe I can figure a way out," said Tubby. "Just keep quiet. Now about these robberies! You say you've got an angle?"

"It's just a hunch, Tub, so crazy it's dopey."

"You never can tell, kid," remarked Bert. "Spill it, anyway."

"It's kind of scientific and complicated," said Elmer. "I got the idea from reading about the fourth dimension—you know—queer things happening in time and space. I've got to work it out, Tub. A day or two maybe . . . huh?"

"If it's that complicated," groaned Tubby, "you'll need a week to simplify it for ordinary minds, like mine." Yawning, Bert reflected that it could do no harm to let Elmer nose around, at that. "I'm going home to bed, kid," he said. "There's just a couple of chair cars in the yard tonight, and so far the thief hasn't bothered them. You ought to turn in, too."

Thinking about Elmer kept the conductor awake for awhile. The kid must have lied about his age to obtain his job, and he may have failed to state that he was still technically a ward of the county. To report him for this shooting would bring on considerable questioning which might result in the boy's being fired. And then what? Bert groaned and rolled over. What would the super think, if he heard that Lardner himself had shot hell out of a Pullman window?

Doggone that dumb kid, anyway!

Sometime during the middle of the night, Tubby's landlady awakened him by pounding on his door. "It's the police," she announced irritably. "On the phone."

It was Wilkins, wheezing, "That you, Lardner? Well, we've got your thief already. Better get down here."

When the conductor entered the chief's office he first saw, near the door, a policeman sitting in a chair tipped back against the wall. Wilkins, at his desk, was twiddling his thumbs. Midway of the room sat Elmer, sprawled in a chair with his fists rammed into his trousers pocket, and his legs straight out. He was eyeing the floor with an expression of intense disgust. Apparently, the boy had been given a "going-over". His left eye was swollen, bruises showed on his cheeks and his shirt collar was rumpled, as though some one had shaken and half-choked him.

"Good grief!" grunted Bert, "you mean he's the thief! I don't believe it."

"Caught him redhanded," drawled the chief. "Officer Clark discovered the prisoner trying to open a parlor car window from the outside. Though why he'd do that is more than I can see, in view of the fact that we found a Pullman car key in his pocket. But he was prowling and attempting an unlawful entry, and that's enough to base a charge on."

"I wasn't stealing anything, Tub!" blurted Elmer.

"Take it easy, kid," said the conductor. "Now just what's it all about?"

Elmer spoke sullenly, fingering his jaw as though it hurt. "Just seeing how the yard would look in the middle of the night, that's all. So I could figure how I'd work if I were the thief. Then I had to see if a window could be opened from the outside. About that key—I found it. You knew I had it. Honest, Tub."

"There won't be any charge," the conductor said to Wilkins. "I knew he was going to look around."

Wilkins appeared disappointed. "Hope you know what you're doing!" he growled. "All right, take him with you."

Tubby did not speak until they were walking along dark and deserted Main Street. "They slap you around, kid?" he then asked.

"Trying to make me confess," replied the boy. "Said I'd been stealing all this stuff, and where did I hide it? But I told 'em off."

"And so they cuffed you some more!" sighed Tubby. "Elmer, you can get yourself in more damn trouble! I know you mean all right, but it's getting to be one man's job just to look after you. Well, kid, no more playing cops and robbers, that's a cinch!"

In front of his house, Elmer stopped and faced Tubby. "I can't quit now!" he blurted. "I can't. I gotta clear myself, don't you see? And show up that fat slob!" The boy gulped. "Slap me around and call me a rat, will he! But I'll show him!" On the brink of shedding hot, angry tears, the newsboy darted into his boarding house.

The conductor shook his head worriedly. Elmer was more of a problem than he'd thought.

Sergeant Jack Mullins, of the railroad police, located Bert in the yard the following afternoon. Although wearing a grey suit instead of a uniform, the burly sergeant's steady gaze, ruddy complexion and pugnacious jaw would have spelled copper to any professional crook.

"I'm here about yesterday's loss," explained Mullins. "Where was the car standing?"

"Right here, on Storage Track Three," replied the conductor. "The last car, as usual, parked beside the building." Bert indicated the long, low, rambling wooden structure at the end of the fishermen's dock, where crews stored their gear and at times packed their catches for shipment.

Mullins strode into the two-foot alley between the fish house and the sleeper touching the bumping post. "Here's where the crook must have worked," he speculated. "Maybe he took the stuff out the car window. Couldn't be spotted, that way, but he'd have to show himself at one end or the other, wouldn't he, with the loot? Unless. . . ." The policeman walked along, stooping to thump the boards covering the open space beneath the floor of the house. "All solid!" he grunted, "not a loose one anywhere."

"And it's a cinch he didn't get into the house through these windows, either," said Tubby. "You'd need a crowbar to pry off those boards. And that's what makes yesterday's job such a puzzler. There were porters around, you see, and the train crew was gassing at the far end of the building. Now they'd certainly see anybody walk by them carrying a sofa seat and curtains. The crook couldn't have left by the water end, because a gandy dancer was fishing near there until dark, and he didn't see anybody. The thief must have evaporated. Fact is, I'm almost inclined to agree with Elmer—that's the newsbutcher—and his crazy talk about the fourth dimension. Whatever that means."

"I know Elmer," chuckled Mullins. "A great boy! I get a kick out of kidding him. This business, though; it seems to call for some kind of a trap. If we knew when the crook was coming again."

"Yeah, that's the trouble," agreed the conductor. "This thief is so damn unpredictable. The queer thing is that he's passed up plenty of chances to swipe porters' personal stuff, including money. What I can't see is why anybody'd want those curtains, and especially that seat."

"Furnishing a boarding house, perhaps." Mullins scowled into the alley. "Well, see you later. I'll work out something."

"Hope so," muttered Bert. Writing the report on yesterday's events, had not been exactly relaxing—and he did not contemplate enjoying the super's reply. Another clean-up like that, and fur would fly.

THAT evening, Tubby found his unofficial police force augmented by two additional volunteers. Not that he was enthusiastic about the recruits, but he had no choice in the matter. He also acquired a magnificent shiner, likewise unsolicited.

The conductor was quietly drinking his beer in the bar across the street from the depot, when two merchant seamen strode in and loudly demanded whisky straights. Bert had observed Duncan and Artie around the town, sometimes earning a day's pay by helping on the fishing boats, or occasionally unloading a carload of freight. He had first encountered the two oilers on the *Special,* where they had purchased a drawing room and then had proceeded to lock themselves in and become magnificently drunk. They had disagreed, and fists and bottles had flown. The ensuing commotion and

the damage to the room had been enormous, and the mariners had spent a month in jail—swathed in bandages.

Duncan, with a rust black suit hanging awkwardly on his big boney frame and sporting an ancient derby hat, strained four drinks through his walrus mustache before he slowed up sufficiently to begin enjoying the taste of his liquor. "Whoosh!" he bawled loudly, expelling fumes and attracting considerable attention. "Artie, I'm now prepared to convince you that the American railroad mon can't hold a tallow candle to the Britisher. He's orl bluster and no finess."

"A matter of opinion, I'd stay," hiccoughed Artie, heavy jowled and chunky of build, but obviously no weakling. Neither was he sartorially elegant in his food-spotted blue suit and his frayed and grimy yachting cap.

A hulking tallowpot had been drinking beside Duncan. Turning to survey the oiler, through eyes rimmed with coal dust and glittering with alcoholic brightness, he growled belligerently. "And what was that crack about the American rail?"

"Merely," replied Duncan, peering down his lumpy nose, "that he would function vurry weel at operating hot air engines."

"Why, you Limey scum!" The fireman shoved his face close to the Scotchman's. "Let me tell you something, Mister. Us Yankees own the best goddam railroad equipment in the world, and we're the best men to run it. We'll out-switch, out-work and out-run any foreigner, and especially the Limeys. I know, because I've been there. Cars—you call 'em—and our leaky old yard goat could haul a million of them two-by-four goods vans! And your toy bird whistles! *Tweet tweet,* they go—silliest damn things I've ever heard. Why can't you put man-sized tooters on your hogs?"

The seadog slammed a ham-like fist onto the bar. "Silly, is it?" he boomed. "I'll have you know, sir, that I'm known as Battler Duncan. So I'll advise you to keep a respectful tongue in your dom empty head when you discuss the British railroads."

"Battler Duncan!" The tallowpot guffawed, until he observed the Battler surreptitiously slipping over his knuckles something with a metallic finish. The rail's eyes narrowed, and instantly he smashed his fist against the oiler's jaw.

Solidly on his feet, the mariner absorbed the blow, meanwhile flinging back his arm for a royal haymaker. His elbow encountered Tubby's eye, and that was how the conductor acquired his shiner.

Bert reeled backward and would have fallen had not Artie grabbed him. While the room whirled about him, Tubby caught glimpses of the fireman sagging and clutching at the bar, the barkeeper waving a bottle by the neck, and Duncan discreetly retreating toward the door. Forgetting his beer, Tubby lurched to the sidewalk, and found himself walking along between the two sea dogs.

"Whoosh!" exploded Duncan, like an air hose bursting. "A most impulsive mon, that! Mr. Pullman Car, you spoiled my punch, but I bear you no ill will."

"That eye of yours!" belched Artie, advertising his lack of several front teeth. "That will be a beyootiful spectacle. It's a piece of raw beef you'll be needing."

"Mr. Pullman. . . . !" Duncan

grabbed at a passing lamp post. "Me and Artie have been wanting a quiet talk with you. Perhaps we'll find this bar less boisterous." Observing Tubby's reluctance, the Battler hiccoughed, "It'll be about the light-fingered gent sabotaging your railroad."

"That's different." Tubby first went to the washroom and splashed cold water on his rapidly swelling eye, then he joined the oilers in a booth and ordered beer. "So you know the thief?" he said hopefully.

"I didna say that!" boomed Duncan, gulping more liquor. "But this rogue works in a vurra mysterious manner, and he constitoots a mental challenge I canna ignore. For a mon who has assisted Scotland yard . . ." The Battler paused to glare at Artie, who had suddenly choked and spewed whisky across the table. "Ignore his uncouth manners," Duncan went on. "Now about this sneak thief—me and Artie have placed a little wager . . . ten dollars, to be exact . . . with certain fishermen."

"You mean," suggested the confused conductor, "that you've bet you can catch the thief?"

"Precisely, Mr. Sleeping Car!" Duncan grabbed at something invisible hovering over his head. "So, when you observe us sleuthing about the scene of the crime, you'll not jump at hasty conclusions."

"Aye," chimed Artie. "You'll not blast us."

"Good grief! I'm no cop," blurted Tubby. "You guys are all mixed up. You ought to see the railroad police; they're in charge."

"Harrumph!" The Battler thoughtfully knocked a dent from his hard hat. "Weel, then, you can vouch for us to the railroad Tommies. Mentioning our sterling characters."

"I'll mention the matter," promised Tubby agreeably. No point in antagonizing these two men. As part-time employes, they were around the yard a lot, and they might stumble over some useful information. They could know something now and be too cagey to talk, or too drunk. The conductor left Artie ogling a woman at the bar, and Duncan complaining that American whisky lacked "propussive" power.

Once in bed, Tubby lay awake thinking about the robberies. True, the monetary value of the lost equipment wasn't staggering, but the whole business was a terrific nuisance, especially to Bert. And now the people hunting the thief were threatening to become as great a nuisance. Wilkins had used little sense and he had been curiously willing to railroad Elmer on the flimsiest of evidence. The boy himself had certainly caused complications, and he probably would again. And now these two sea-going blunderers had entered the picture. They'd probably come in slugging with brass knuckles, and kayoing the wrong people.

Rubbing his painful eye, Bert wished that he were back at conductoring. There, when a man finished his run, he dumped any unsolved headaches into somebody else's lap. Here, the run never ended.

TUBBY'S appetite for breakfast was not helped by the note which had arrived from Superintendent Trumbull. There had been serious complaints concerning the condition of the *Special*. Why didn't Lardner guard the cars? And what was an agent doing with a gun? If there were any shooting to be done, call the cops. They might succeed in

hitting the thief, instead of shooting out good windows. In general, Tubby was not earning his pay.

"For gosh sake!" Bert said to Mullins. "No ideas yet?"

"Just that idea about setting a trap," said the sergeant. "But what in hell can we use for bait?"

"There's two of those new style roomette cars coming in on the *Special* this weekend," suggested Tubby. "They're a brand new design; just out of the shop, triple-deck berths and a lot of extra fancy gadgets. I don't suppose there's anything loose that couldn't be picked up in any standard sleeper, though."

"Still, the crook might not know that." Mullins thought for a moment. "What's the matter with trying? The guy might be curious, at least. We could park them at his favorite spot, at the end of that track, and you might even get rid of the porters. I could rig a burglar alarm system, and see what happens. At least it's an idea, and that's more than we've had so far."

"Will anybody nibble?"

The sergeant shrugged. "I'd better give Wilkins a rough idea of what we're up to, though, so his man won't blunder in and upset our apple cart. That'll be Saturday night."

"By the way," Tubby grinned. "We've got two more amateur detectives on the job." The conductor told of his encounter with the oilers.

"I'll get a line on them," Mullins promised. "You think they know anything?"

"Search me. But they're just nuts enough to have made a bet."

With the policeman on the job, Bert went to bed nights, instead of prowling. Thursday evening he and Mullins were talking in the office when Elmer breezed in, resplendent in a new brown suit that almost fitted him.

"Hi, copper! Hi, Tub!" the boy grinned, sprawling in a chair. "I saw that slob of a Wilkins almost get hit by a car. Wouldn't that have been groovy?"

"Hmm!" grunted Bert. "Get him off your mind. What I'm interested in is that super-scientific theory of yours about the robberies. Can you put it in plain English now?"

The boy grinned mysteriously. "It's like this, Tub. How can something get from one place to another without moving?"

"Never mind the riddles, kid. How?"

"By moving tomorrow night." Enjoying Tubby's bewilderment, Elmer stepped to the wall mirror, slicked down his hair and adjusted his crimson necktie, then lit a cigar. "So long, men," he said importantly. "I got a date, and what a voluptuous hunk of love she is! Boy, oh, boy!"

"Just a minute, kid." Mullins stopped Elmer in the doorway to pat his coat pocket. "What you got here?" The sergeant drew out a realistic appearing gunmetal water pistol. "Okay," he said. "Guess you can't hurt anybody much with this. But why?"

"Just to kid the girl friend." Reddening, Elmer replaced the weapon in his pocket. "Well, see you fellows in the yard Saturday night."

"Hey!" Tubby lunged to the door. "What's that about Saturday night?" But Elmer had already clattered down the stairs. The conductor scowled at Mullins. "So somebody on the police force couldn't keep his mouth shut about our trap!"

"I guess I know," said the policeman. "Elmer is palsey-walsey with that Italian janitor at the town hall,

and he'd be liable to overhear things. He hangs out with the lay-over crews." Mullins smoked thoughtfully. "Might as well tell you, Lardner, that I've been doing some checking on Elmer. And you won't like what I've learned. The boy didn't get that gun you took away from him in a hock shop. He bought it from a certain disreputable character in town. Fact is, Elmer knows the wrong people. The local cops are aware of that, and that's the reason they gave him the going over Sunday night."

"Good grief!" Tubby stared. "I didn't know he was on the loose to that extent. Say! You heard his mysterious sounding chatter—about the stolen equipment moving around! Thought he was just showing off. But you don't suppose that he really knows something, do you?"

Mullins shrugged. "Think it over. Doesn't this thieving look like kid stuff? Not much profit, if any, mostly adventurous and mystifying."

"Yeah." Bert frowned worriedly. "Guess I kind of wondered about that myself, in the back of my head. But you know how it is; when you hate to believe something, you close your mind to it. But even if that's true, Mullins, the boy's no real crook. He's just mischievous and wild. I'll swear to that. Just too much imagination."

"Sure," agreed the sergeant. "We know that, and we know he's got a future, once he gets on the right track. But what we know won't help the kid if I have to turn him over to Wilkins. Even if he gets off with a light sentence, or perhaps a suspended one, he'll have a record, and that's something I'd hate to see." The policeman sighed. "However, let's not jump at conclusions; we haven't got anything on anybody, yet."

THE morning train brought in extra sleepers, which were set on the storage track. Tubby walked through the string, cautioning the porters to be on their guard. Then, going to the end of the last Pullman for a look at the ocean, he observed Duncan and Artie talking near the bumping post.

Artie was finishing a sentence: ". . . paint the rosebud green."

"Hi, there!" greeted Bert. "Cracked the case yet?"

"I have my theory," replied Duncan ponderously. "But I must do some vurra tedious and thorough investigating."

"Aye," grinned Artie. "True Scotch thoroughness."

The Battler removed his derby to scratch his head. "On the other hand, events might move faster than I had thought."

"Aye," Artie agreed. "By Saturday night, perhaps."

Tubby was suddenly all attention. "What about Saturday?" he blurted.

Artie merely winked. The Battler chewed on his disintegrating stogie. "It's vurra curious," he rumbled evasively, "this law of probabilities. It's something you sense . . ."

"Like the itch?" suggested Artie helpfully. "I noticed you scratching."

The exasperated conductor gritted his teeth. This pair could beat around more darn bushes! Even Mullins had learned exactly nothing from them. Controlling himself, Tubby said with deceptive casualness, "Like to have you fellows meet a friend of mine. He's interesting once in a while. The janitor at the town hall."

"Aye," Artie grinned knowingly. "We . . . ouch!

"Harrumph!" exploded the Battler, lifting his hugh foot from Ar-

tie's smaller one. "A bonnie day, eh!"

The conductor returned disgustedly to his office, meditating on the significance of Saturday night. Later in the day, he discovered that Artie's incomplete remark, "Paint the rosebud green," was haunting his mind. A queer statement, and not characteristic of the oiler's usual blunt speech. Bert tried to shrug it off.

Mullins had decided not to abandon his scheme. "We've got to watch these new cars carefully anyway," he said. "And nobody knows exactly what I've planned. Not even Wilkins; I just told him that the yard would be under control. It's barely possible the thief may be screwy enough to accept our challenge."

The two roomette cars arrived, resplendent with paint and polish and the object of every rail's attention. When the Pullmans had been set on the storage track, next to the bumping post, Tubby instructed the porters to sleep in other cars, explaining that the police were sealing these. Then, after drawing all the shades, Bert and Mullins began stretching a continuous length of fine, insulated wire across the inside of the windows, adhesive-taping it to the frames. Mullins left several windows slightly opened and the screens invitingly raised, but anyone who entered would break the circuit and sound an alarm bell. As he left each roomette car, the sergeant let a berth ladder jam itself against the door, thus preventing entry through that end. Then Mullins explained about the fish truck and agreed to meet Tubby later in the day.

After chatting with the uniformed company officer patrolling the yard, Tubby went about his business. Meeting Elmer for a moment, Bert refrained from alluding to the boy's remark concerning Saturday night. It was best to let the boy carry out whatever plans he had made for tonight, with no inkling that he was under suspicion. In a way, it was a dirty trick to play on the kid. But if he were guilty of the robberies, shielding Elmer would do him more harm than good, in the long run.

The fish truck smelled. "I'll carry this perfume for a month," grumbled Tubby, concealed with Mullins inside the covered delivery truck. It was almost sunset and the driver was backing the car against the inshore end of the fish house. The two men had left town earlier in the afternoon, boarding the truck at Clammers Village, ten miles away.

"Fine, Ed!" said the sergeant to the driver, while peering through a hole in the curtain extending across the truck's rear, and looking squarely into the space between the cars and the building. "So long, Ed."

"Now what happens?" queried Tubby, when Ed had left.

"We stay here. My night man watches the other side of the *Special.* You've got porters in all the cars except these two. But this alley here appears unguarded."

"I hope," grunted Tubby, "that I don't get all stunk up for nothing."

Time passed slowly. Bert found himself concentrating to an annoying extent on Artie's expression, "Paint the rosebud green." The phrase kept reiterating itself in his mind like a line from an unforgettable song. A nuisance!

The moon rose and the small spot of ocean visible to the watchers glowed phosphorescently bright, although the intervening alley remained dark as a tomb. Exactly nothing happened until eleven o'clock.

Then a blurred figure appeared beside the bumping post and stood silhoutted against the water. A moment later, the man sent a powerful search light beam probing the length of the alley.

"Who in hell. . . ." whispered the sergeant, blinking. "No thief would do that, and he's spoiling everything."

The source of the light wavered as the bearer strode between the cars and the house. The light was suddenly directed against the building's base, and seemed to disappear into it.

"Screwy!" muttered Mullins, after listening for half a minute. "I gotta see. . ." He jumped from the truck and flashed his own light into the alley. The beam illuminated two fat, blue-trousered legs lying crosswise of the space, attached to a massive rump which any hippopotamus would have owned with pride. The rest of the man had somehow crammed itself through a two-foot square opening in the boarding at the base of the house. The man lay quietly on his face, breathing wheezily. With considerable panting and straining, Tubby and Mullins dragged out the quarter-ton of fat and rolled it over on its back. It was Chief Wilkins.

"Been sapped!" grunted Mullins, inspecting the welt on the chief's head. "Look after him. I'm going in here."

Mullins emerged from the hole while Tubby was splashing water onto the victim's face. "So he's coming around!" grunted the sergeant, watching Wilkin's eyes slowly open. "Well, there's nobody in there now, of course. He's had time to go out

DOWN the alley the sergeant's flashlight shone on a pair of blue-trousered legs, projecting from a small wooden opening

under the front and be a mile away while we were dragging this guy clear. The only thing I learned is that the chief could have been socked with a heavy search light—here's the lens."

Wilkins did not become thoroughly coherent until after they had loaded him into the fish truck and Tubby had delivered him to the local hospital. "Don't tell me to go to bed!" he raged at the doctor who had treated his scalp wound. "I've got work to do." He turned to Bert. "So your railroad bulls have the yard under control! Like fun they have! Well, I'll learn what's going on there if it takes the whole force!"

Tubby drove rapidly back to the fish house. Mullins stepped from the shadows. "I hope the fat fool is dead!" he muttered.

"The last I heard," grinned Tubby, "he was calling out the reserves. They'll be swarming all around us soon."

"Ain't that dandy!" The sergeant sat on the car step and spat disgustedly. "That'll be a nice session with my boss tomorrow. Here I've fooled around a whole week, got extra help, and accomplished exactly nothing. I blab to Wilkins that I've got things under control. So the local chief comes snooping around and he gets sapped right under my nose, and the thug gets away clean. So the town authorities take over. What does that make me, Lardner? Something with two long ears—that's what!"

"Still, we learned how the thief came and went," said Bert.

"Yeah, a kind of door, three boards cleated together. It hooks from the inside, and so it seems as solid as the rest of the house. I missed that angle, too. Add a couple of more long ears and I'll waggle 'em."

"What's bothering me," said Tubby, "is that the kid must have known about that door. You remember his crazy talk—stuff moving the next night? Well, it all fits, now. The crook hid the loot under the building. Then, Sunday night, when the coast was clear, he rowed a boat under the dock and took the stolen goods out through the open front of the house. So Elmer did know. And he's got a heavy flash light, too."

"Are you saying that it was the punk who sapped the chief?" Mullins clenched his fists. "Could be, at that; Elmer would certainly be around somewhere. Maybe Wilkins heard him removing the door, and that's why he came down the alley to investigate. He was a lot nearer than we. So the kid sapped him in order to get away." The sergeant grated his teeth. "If I get my hands on that tow-headed brat I'll break him in little pieces. Gumming my trap and making a monkey out of me!"

"I knew he'd cause more trouble," commented Tubby. He sat for a while listening to the crickets and watching the lighthouse across the cove monotonously flash out its coded signal. His thoughts turned again to Artie's senseless phrase, "Paint the rosebud green." Why in heck would anybody paint a rosebud?

"Most time for my vacation," sighed Mullins. "It can't come too soon. A friend owns a houseboat, and—"

"Houseboat! That's it!" blurted Tubby. Now he knew what the oiler had been talking about. *ROSEBUD* was lettered in faded blue across the once white end of a dilapidated old houseboat half aground near the railroad trestle across the inlet, a mile out of town. The barge itself measured perhaps ten by twenty feet and

it was topped by a weather-rotted deck house that certainly needed painting. It was exactly the sort of place that those two rusty sea-dogs could be expected to inhabit, possibly as squatters.

"You suppose," queried the conductor, "that somebody could be using this Pullman equipment to furnish a houseboat?"

"Cripes!" Mullins slapped his leg. "Now that is an idea!"

"Okay! Then let's go!"

As they left the yard, they could hear police cars approaching with open sirens. "As though any crook would be hanging around now!" snorted Mullins.

FROM the road to the darkly looming houseboat was a short walk along the shore through tall grass. Aground in shallow water, the craft was accessible by means of a plank extending to the land. The windows were dark and no sound could be heard.

"I'm having a look," whispered Mullins. "If anybody comes—"

"I'll yodel, or something." Tubby hunkered in the grass.

For a heavy man, the sergeant moved with surprising ease across the springy plank. He flashed his light about the small deck. After listening cautiously at the door, he turned his searchlight against the dingy glass in the upper panel. When Mullins came ashore again, he was grinning.

"All that drag needs," chuckled the sergeant, "is markers and an O. R. C. to highball it out of town. There's Pullman blankets on the bunks and a berth curtain hanging in front of one. There's cuspidors everywhere. And there's a settee on the deck made out of boxes and that sofa seat. So the case is solved; just gotta call the state police. Only—" Mullins paused thoughtfully, "we're not sure our sea-going friends live here. So I'd better hang around a while, to make sure. The bars'll be closing soon, and then we'll know."

"I'm curious, too," agreed Tubby.

"This is good." Mullins chuckled again. "We tie the case neatly in a bag while Wilkins is tearing the yard apart. This'll make history. It won't hurt my record any, either. Lardner, if you ever need a friend. . . !"

Half an hour later the officer nudged Tubby and pointed to a slender figure cautiously elbowing itself onto the deck. "Damn if it don't look like the kid!" muttered the sergeant. The intruder merged into the shadow cast by the deck house. "Now what's he up to? This I gotta see."

Then Tubby spied a derby hat come bobbing along. Its wearer boarded the boat, unlocked the door; and then, inside, he lighted a kerosene lamp, revealing himself as Duncan. He tensed as a partially stifled sneeze sounded from just outside, then lunged to the deck.

Elmer Bodkins sprang to his feet, upsetting the settee with a clatter. "Stick 'em up!" he shrilled. "And no fooling about it, either!"

"Harrumph!" boomed Duncan, freezing and half raising his arms. Kid or no kid, a gun was something to take seriously. "I canna understand," he rumbled. "The newsbutcher with a pistol! Are you daft, lad?"

Tubby held his breath. The fool boy . . . with just a water pistol . . . or was it? Crazy . . . but nervy, too. How long would Mullins dare wait to learn Elmer's intentions, before interfering.

"The Pullman stuff!" blurted El-

mer, crouching dramatically. "You've got it, and that's what I came to find out. Okay, so now I'll take you in myself, instead of being a stool pigeon, see! So get going, mister. Get going!"

"If you didna have the gun," grumbled Duncan, "I'd call you a scummy meddlesome sprat of the lowest order. Now it's two miles to town, and—"

"I said get going!" Elmer made jabbing motions with the gun. He was immensely relieved when the mariner, still eyeing the weapon nervously, sighed resignedly and edged toward the gang plank. In fact, Elmer was so relieved that he forgot himself and squeezed on the trigger. From the gun's muzzle there spurted out a ludicrously thin stream of water.

"Oh my gosh!" bleated the shocked boy, and he went backward over the rail.

"Whewww!" Mullins mopped his face. "I checked on that gat of his this afternoon, but supposed he'd gotten another? Well, let's get the guy."

A minute later Mullins had slipped steel bracelets over the chagrined oiler's wrists. "The Pullman stuff aboard this boat makes it so damn near railroad property that I'll keep you here," he said, "while Lardner goes for the state police."

"I must say, gentlemen," moaned Duncan, "that this sityooation is vurra embarrassing. Is there no compromise that we can make?"

When Mullins shook his head slowly, Duncan sighed deeply. "In that case," he announced, "I have no liking for the State Tommies and their unsympathetic ways. But I have heard that Wilkin's jailer's wife feeds the boarders vurra tastily indeed, from her own kitchen. And so, Mr. Policeman, I'm na averse to a quiet jaunt into town."

Duncan paused on the gang plank for a last look at his home. "Ah, weel!" he sighed philosophically, "the dom tub would be deathly cold in winter."

Wilkins accepted the prisoner sourly. "We'll have Artie before morning," he grunted. "Which of 'em sapped me?"

"That," said Mullins, enjoying his triumph, "is a matter for you local cops to figure out. If you ever do."

The sergeant drove Tubby and Elmer to the all-night lunch room. While they were waiting for their ham and eggs, he turned to Elmer. "Now then, kid, talk."

Unsure of the outcome, the boy spoke hesitantly, squirming uneasily in the oversized and tattered overalls he had borrowed from Duncan to replace his own drenched suit. "I kept hanging around the yard," he explained. "Last night, I saw Artie go under the house. So I followed him. He didn't swipe anything—he just looked out the door. Guess I should have told you about that door, but I wanted to sew the case up myself." Elmer could not resist gloating. "And I did; you gotta admit that! And I got there ahead of you cops, too!"

"Go on?" said Mullins. "How did you sew it up?"

"Well, this afternoon, I was looking out the train window, and I saw Duncan walking toward the houseboat. So then it was a matter of simple deduction. 'Course I had to make sure I was right, so I went out there tonight. The only trouble was, I had to wait until somebody came so I could look inside. I'd smashed my light, you see."

"Uh-huh!" grunted the sergeant

significantly. "You didn't happen to smash it over Wilkin's skull, did you?"

"Gosh, oh, gosh! How'd you know?" Elmer's eyes betrayed his fear. "But I never knew it was him, honest!"

"Okay! So you didn't know. Go on."

Elmer hesitated. "Well, I had to see what you were up to tonight. I was just going to crawl out the hole and hide under a car when I heard somebody coming. When he stuck his head in I thought it was Artie. You would, too, his yachting hat is like a cop's, in the dark. So *blooie!* I let him have it. Then I heard him wheeze, so I knew who it was. Then was I scared!"

"So you ran," said the sergeant. "And after a while, you thought the only way to redeem yourself was to bring in the crooks. That right?" Elmer nodded and Mullins went on, "Guess the less we say about Wilkins getting socked, the better off we'll be. That is, if you can keep your mouth shut."

"Long as I live," Elmer vowed.

"You see, kid," Mullins drummed with his fingers. "I've got an idea. It took guts, real guts, to face Duncan with a squirt gun. Fact is, you've got a lot on the ball. But you can't go on running wild like this. Now then, since our boy died . . . well . . . Mrs. Mullins and I live in a big house in Manning, and we kind of rattle around by ourselves. Suppose you came to live with us? I don't mean just as a boarder, we could sort of adopt each other. Maybe you could go to school—study real stuff. You could think it over, anyway."

"Gosh, Mr. Mullins!" Elmer sat straight up. "I don't have to think that over. You could teach me about police work, for one thing. And living in a real home . . . gosh! I'd do what you told me, too. You're a right guy."

"Shake on it, kid!" Mullins extended his hand.

Tubby coughed to rid his throat of a lump. "My bed time," he said. "Night, men."

The conductor lay awake a few moments, chuckling contentedly over the way things had turned out. He was recovering the stolen property intact and undamaged. He'd be getting his night's sleep, too, for a change. As for Duncan and Artie—whom he considered to be amusing dunderheads rather than dangerous criminals—they'd take a workhouse sentence in their stride. The best thing of all, though, was Mullins taking Elmer under his wing. That should work out fine—they needed each other. Yeah. None of them had been any too brainy, but things had worked out.

Photos from St. Louis Historical Society, 304 Belt Ave., St. Louis 12, Mo.

BOTH the builder and namesake of Pacific Railroad's Number 24 ***above***—the ***O'Sullivan***—are rail history. Palm & Robertson, which outshopped the engine in 1853, was the first locomotive builder west of the Mississippi; O'Sullivan himself was chief engineer of road construction west of Franklin, Mo., until his death in the Gasconade disaster of 1855. ***Below***, Pacific's Taunton-built ***Gasconade***

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RAILROAD
MAGAZINE

USE THIS EASY ENVELOPE TODAY

Light of the Lantern

Car Heating

RAIL PASSENGERS will tolerate a great many inconveniences with a minimum of griping but there is one comfort they demand and fight for. In wintertime let the temperature drop a few degrees and the connie, crew and even the management get a verbal ear warming. Travelers want their cars heated like a snug home with a crackling fire on the hearthstone.

It must be added that the railroads go out of their way to oblige. Weatherstripping double windows, the best of insulation, and automatic systems of steam heating insure semi-tropical temperatures.

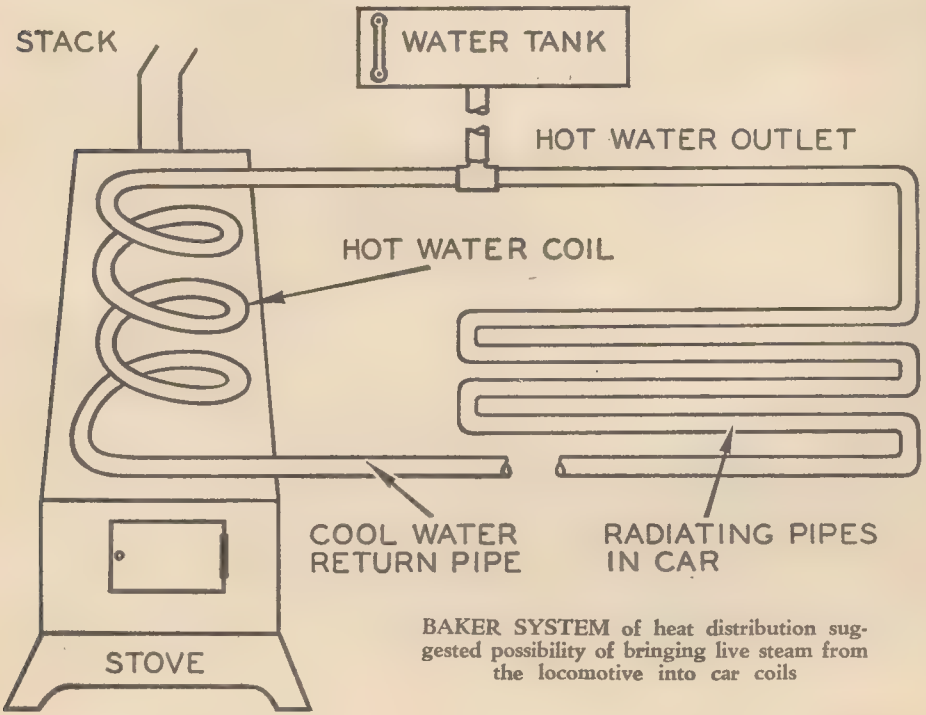
THE OLD COAL stove was a masterpiece of thermal inefficiency and a fire hazard without parallel. But the coffee pot looks good
International News Photo

regardless of outside conditions, to the patrons of even the lowliest local.

But this was not always the case. Back in the days of wooden cars and open vestibules the one method of heating was by means of a stove, generally stuck in one corner of the interior. Originally intended to burn short lengths of cordwood, it eventually was fed from a coal scuttle, reducing the frequency of stoking and supplying a steadier degree of heat. No matter how red the bulging sides of the pot-belly became, however, some passengers were forced to wear heavy overcoats wrapped snugly about them while others had their shins all but toasted to a crisp. There was another bad feature about these stoves. In an era of rough handling, inferior trackwork and manual signaling, wrecks were commonplace and the scattering of live coals over shattered wooden wreckage resulted in fires which frequently took more lives and did more material damage than the initial impact. The situation became so critical that many states eventually enacted laws prohibiting the use of such heating methods.

To William C. Baker goes much of the credit for the development of a new concept of car heating. He continued to use the stove but in such a way that its fire did not have to be forced, nor was its output centralized in one small spot. His idea was to use hot water sent through pipes along the sides of the coaches, where they boosted the temperature of the air, causing it to rise toward the ceiling and creating circulation. The water was heated in a coil within the stove as shown in our first illustration. The lighter hot water was forced out at the top, passed on through the car coils and, after losing some of its heat, found its way back to the stove for recirculation. In order to provide a completely filled system a reservoir was set at the highest point possible in the car.

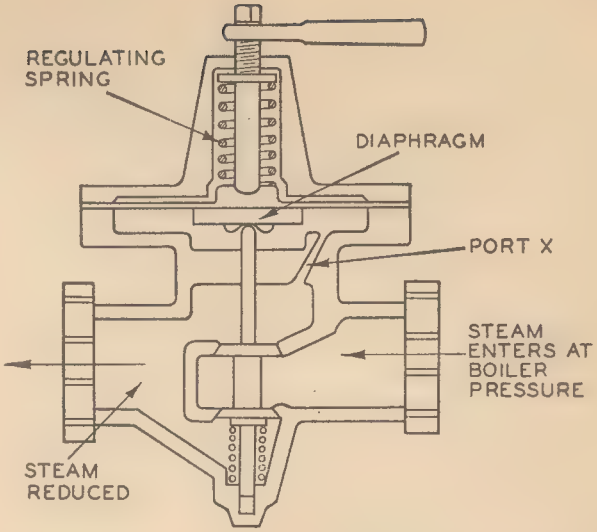
This Baker heater was designed to withstand heavy shocks without damage and there were many safety provisions including coal and ash pit doors which would not burst open in the event of a wreck. The design is still in use today, particularly on gas-propelled cars.



BAKER SYSTEM of heat distribution suggested possibility of bringing live steam from the locomotive into car coils

Once the coiled-pipe system had been found successful, it was a logical step to investigate the possibility of using steam. As long as air could be piped back to the rear car for braking purposes, why couldn't the same thing be done with steam? On the locomotive there was a plentiful supply but the big problem was to design a flexible hose capable of carrying the pressure With boiler safety valves set at 200 pounds, rubber hoses, even when strengthened with many layers of fabric, let go after short periods of service.

Fortunately, it had already been discovered that a much lower pressure produced more satisfactory results in raising car temperatures. Slower circulation eliminated violent swirls and drafts. Then why not devise some valve that would allow only a small proportion of the steam to enter the heating system? The reducing valve was developed to do the trick.



REDUCING VALVE on locomotive delivers predetermined steam pressure to cars without attention from the engine crew

Referring to the second drawing you will see how the mechanism operates. It's upper or regulating portion is composed of a diaphragm and a spring with a handle for regulating the various pressures desired. In the lower section, which controls the steam, is a piston at the base of which is a small spring to insure perfect closing.

Steam from the boiler enters this valve through a connection at the right. The turret valve is opened and steam, at boiler pressure, surrounds the piston. Let's say that fifty pounds is called for, back in the cars. The handle is moved to a position which places fifty pounds' tension on the regulating spring. This forces the diaphragm down and in turn the piston valve is unseated. Steam then flows through the pipes under the tender and through the hoses to the cars. As the pressure in the train line pipes reaches the fifty-pound mark or exceeds it by a fraction of a pound, it also flows through port "X," under the diaphragm, compressing the spring and allowing the steam valve to close. The valve stays in this position until the train pressure drops slightly, when the spring again opens the steam valve and more vapor is supplied. Regardless of a variance in operating pressure on the locomotive, the regulating valve supplies steam to the cars without any further attention on the part of the engine crew. Each railroad, or division, according to its location and the severity of the weather, has set rules regarding the pressure adjustment. From ten to twenty pounds per car is the general practice.

When steam leaves the engine it passes through a large pipe, thoroughly insulated to minimize condensation, and extending the length of the car underframe, adjacent to the center sill. Flexible hoses, easily disconnected, are placed between each two cars. From the train line pipes the steam is drawn off into coils which run along the floor below the windows.

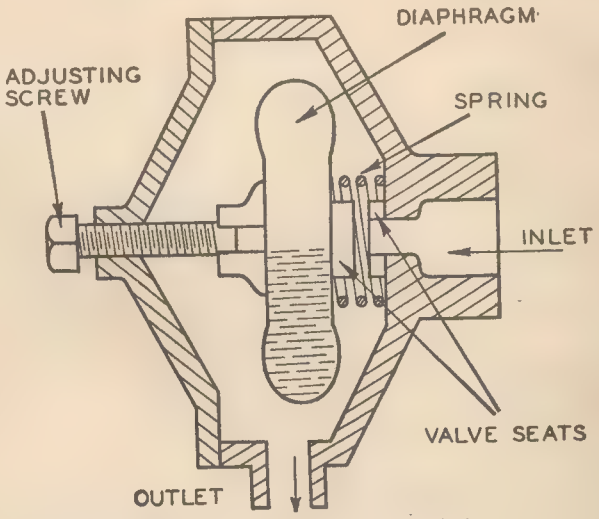
All this sounds relatively simple but there is one fly in the ointment—*condensation.* As the air is heated the steam turns to water and in order to keep the pipes hot, the liquid has to be drawn off.

At first manual valves or "drips" were employed and this almost spelled condemnation of the system. For if they were opened too wide loss of steam plagued the fireman. On the other hand, slow dripping often caused the valve to freeze, stopping circulation, cooling off the car and frequently doing damage to the pipes. It became apparent, then, that the most essential part of the system would have to be some automatic method of releasing condensation. Hence the origin of the steam trap.

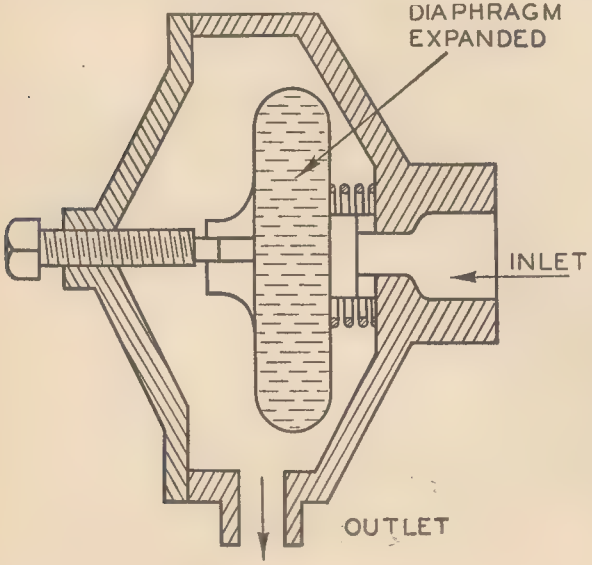
Its operation is based on the simple principle of physics that a liquid, when heated, expands. Water might well have been used but its boiling point is high. Alcohol, which has a wide expansion and contraction range and which boils at 180 degrees (f.), was chosen instead, a quantity of the liquid being placed in a thin metal casing and sealed off to prevent leakage and evaporation.

Our third and fourth drawings show the operation of the trap. The diaphragm is round, hollow, and half filled with alcohol. It is set in a strong case having an adjusting screw on one side and an inlet valve seat surrounded by a coil spring on the other. Heating coils in the car are slanted slightly, allowing all condensation to flow down to the trap beneath the car, outside the trail.

The purpose of the spring is to keep the diaphragm off the seat, allowing steam and hot water to flow through the drain or outlet port. This heat immediately causes expansion of the alcohol encased in the diaphragm, forcing the side outward for a maximum of about three-eighth of an inch. The adjusting screw



EXPANSION and contraction of alcohol in diaphragm due to temperature changes controls opening and closing of steam trap



allows for expansion in only one direction so the valve seats, shutting off the leakage of steam.

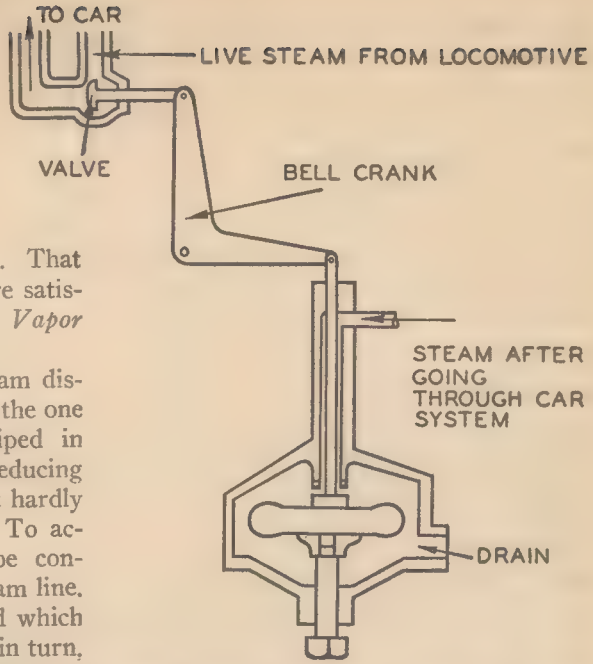
When this happens the pipes in the car are hot but in raising the temperature of the air there is condensation which again flows to the trap. Under its cooling influence the alcohol soon contracts slightly reopening the valve seats and allowing the water to drip away until steam again replaces it, whereupon the expansion process is repeated.

This method of car heating is known as a direct steam system. While it functions well, it is

still far from perfect. You will recall that each car requires from ten to twenty pounds' pressure at the reducing valve or at times more than a hundred pounds for a long train. This does not spell economy when far less pressure is desired for efficient heating in any given car. That is the reason for a newer and more satisfactory mechanism known as the *Vapor System.*

Actually its basic scheme of steam distribution differs only slightly from the one just described. The cars are piped in much the same manner but a car reducing valve delivers steam to the coils at hardly more than atmospheric pressure. To accomplish this the trap had to be constructed with a valve set in the steam line. Attached to its diaphragm is a rod which is connected to a bell crank. This, in turn, is coupled to a valve which controls the steam supply.

The return from the coils in the car is piped to the cavity surrounding the diaphragm in the trap. If this is condensed water and fairly cool the diaphragm will contract, opening the valve to the atmosphere. In this position the levers to the bell crank open the valve controlling the steam supply and allow vapor to flow through the system. The pipes are then heated to two hundred and twelve degrees and when this steam reaches the trap it causes expansion shutting off both the trap valve and the one controlling the steam supply. This condition remains unchanged until the temperature falls back to two hundred degrees when there is another release. The almost constant temperature maintained with a minimum of pressure in the coils makes this an almost perfect heating system.



BELL CRANK and levers actuate valve in steam line of vapor system maintaaining almost constant temperature with minimum pressure

But there is a still further refinement in the newest cars. This is the Vapor-Zone system which uses thermostats located on each wall of the car to make up for a temperature differential between them which may result from a strong outside wind or direct sunlight. Each thermostat controls the degree of heat in the bank of coils beneath it. Another but less significant improvement is the substitution of a coil-like bellows for the alcohol-filled diaphragm in the steam trap. Like its predecessor the coil is ultra sensitive to heat changes.

Missouri Pacific Photo

MOPAC MEET. Thirty-nine Diesel locomotives of all types will soon take over all assignments in the system's Kansas-Colorado territory

Each month the Lantern Department prints answers to rail questions of general interest, submitted by our readers. We do not send replies by mail.

1

RECENTLY *I read a newspaper item stating that MoP's Central Kansas-Colorado Division will be completely Dieselized next year. Please tell why the road selected this division, list all new Diesel equipment on order, and where it will be employed, and give the total number of units of this type of power which MoP will then have in service.*

Missouri Pacific chose the Central Kansas-Colorado Division for complete Dieselization after having made an exhaustive survey of its northern lines to determine on which portion to begin its postwar program of locomotive modernization. They chose the Colorado Division because of the intense competition in that area, and the fact that the substitution of Diesel power for steam offered greater overall possibilities for faster and more dependable service, coupled with certain operating economies. Some 562 cars which are now in company service for coal and cinders will be made available for revenue use in the Western District, a very direct way of remedying the freight car shortage which has been causing Mr. Young so many sleepless nights.

To completely equip the CK-C Division, and partially Dieselize its Texas lines, the MoP has placed the largest single order for Diesel power in its history. Forty-nine locomotives of all types, with a total of 169,000 horsepower are needed, thirty-nine for the Kansas-Colorado territory and the remaining ten for operation in Texas. The new locomotives are to be of the following types and sizes:

Northern Lines

20—4500 HP (three-unit) freight locomotives	60 power units
4—3000 HP (two-unit) freight locomotives	8 power units
8—1500 HP (one-unit) freight locomotives	8 power units
3—1000 HP (one-unit) switch locomotives	3 power units
4—4000 HP (two-unit) passenger locomotives	8 power units

Texas Lines

6—3000 HP (two-unit) freight locomotives	12 power units
4—4500 HP (three-unit) freight locomotives	12 power units
Total—111	power units

Missouri Pacific plans to retire eighty steam engines during 1948. Most of the new Diesel road locomotives will see service between Pueblo, Colo. and Osawatomie, Kan., a distance of 563.6 miles. Tentatively, the majority of the twenty 4500-hp freight engines designated for the northern lines will be assigned to trains working from Osawatomie (58.9 miles west of Kansas City) through to Pueblo and also in adjacent territory, especially when not needed for peak seasonal movements on the CK-C Division. The 3000-hp locomotives will be assigned to local service and 1500-hp engines will be employed in local and traveling switching service, and the protection of work extras. Proposed use of the 4000-hp passenger units would be on trains 15 and 16, *The Royal Gorge,* between St. Louis and Pueblo. They will also be employed in extra and special passenger train service, and for protection of maintenance requirements.

Acquisition of Diesel locomotives for the Texas lines will provide modern power to handle the perishable traffic which requires fast schedule to improve service through the St. Louis gateway. This traffic has greatly increased in recent years, and developments in the Rio Grande Valley point to still greater volume. Merchandise to and from New Orleans, Houston and San Antonio demands fast and dependable service.

At the present time MoP has ninety-seven Diesel locomotives of various types and horsepower in service, and is awaiting delivery of eighteen more units from previous orders. Added to these 115 locomotives, the new $15,809,000 order of forty-nine engines will bring the system's total of Diesels up to 164. Missouri Pacific's growing Diesel fleet reflects the general trend on American railroads over the last ten years. In 1936, only twenty percent of new locomotive orders were for power of this type, whereas in 1946, ninety percent was the figure. As of December 31, 1946, United States railroads owned 4,848 Diesel locomotive units and had ordered 1,401 more.

2

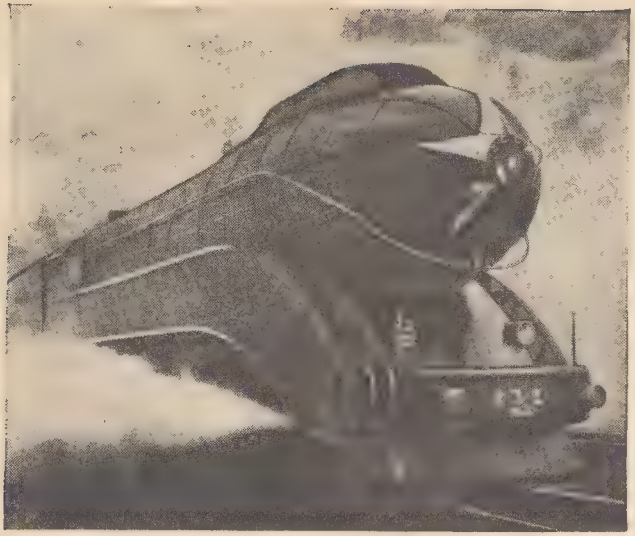
WHERE *the Pennsy's freight line crosses South Fourth Street, Harrison, N. J. and goes into the factory yard of General Motors' Hyatt Roller Bearing Plant, I saw 0-6-0 switcher Number 583 with the letters NJ ME in white, on the pilot. Kindly explain.*

The letters signify that this engine is assigned to the New Jersey Meadows Shop roundhouse, in the adjacent town of South Kearny.

3

FURNISH *details concerning the Southern Pacific's freight train wreck at Casco, California, last July.*

Engine Number 4369 and twelve cars of its train were derailed at El Casco, about



AT LEFT: 2-3-2 (4-6-4 to you) which recently went into service on the Soviet Railways. *Pst.* our secret agent thinks it's powered by steam

BELOW: Milwaukee road switcher, built by Alco-G. E. Six-wheel trucks give her unusually smooth riding qualities at high operating speeds

seventy miles east of Los Angeles, killing the engineer and fireman. Investigators said the wreck was caused by a short 2 x 4 piece of wood that had fallen onto the rails at a railroad crossing. Locomotive 4369 was one of the Espee's ten Mt-5 Class 4-8-2s, numbered 4367-4376, which were built by the Southern Pacific in 1929. Specifications of this series are as follows:

Cylinders	28 x 30
Drivers	73
Pressure	210
Tractive Effort	57,510
Wt. of Engine	368,000

4

A FELLOW *railfan and I have been having a controversy as to when the Seaboard placed the* Silver Meteor *in service, and whether or not this was the first through streamliner between New York and Florida. Will you arbitrate our dispute?*

Distinction of being the first streamliner between these points does belong to the Budd-built, stainless steel *Silver Meteor* train, which was placed in service Feb. 2, 1939, covering the approximately 1388

miles between New York and Miami in twenty-six and one-half hours. It originally made a round trip every three days, operating between New York and Miami and New York and St. Petersburg on alternate dates. The first half-year it averaged 190 passengers for every mile traveled. Simultaneously, on December 1, 1939, the Seaboard added two more *Silver Meteors,* cutting the time to twenty-five hours, and the Atlantic Coast Line inaugurated its fleet of four *Champions,* two following that road's regular west coast route, and two traversing the Florida East Coast Line's rails to Miami. All seven trains were Budd lightweights from their inception, offering dual daily service and the luxury of deluxe coach and sleeper travel at no extra fare.

Photo by Frank Clodfelter

SEABOARD'S *Silver Meteor* speeds southward through Alexandria, Va. Three "A" units are running in tandem

5

SUPPLY *data on the live steam locomotive, with a train of open "amusement park" passenger cars, which I glimpsed in the city park while I was passing through Elko, Nevada.*

You saw the Western Pacific, Jr., a miniature railroad system built and operated by Paul Russell, Feather River Route engineer, and his wife, Beth, for the pleasure of the children of Elko County. The engine, constructed by them, is a ten-wheeler, built along the lines of old WP engine Number 99, whose number she wears on the side of her cab. They bought the boiler from an ex-rail who gave up the idea of building the little pike. Next they had the cylinders and wheels made and started to build in 1941, completing the job in 1946. The engine is eleven feet, six inches long and forty inches high. She has Walschaert motion, 3¾ x 5 cylinders, and 13-inch drivers, one of which is blind. Fully-equipped with injector, lubricator, sanders, brassed journals all around, whistle, headlight and air pump, the safety valve pops off at 140 pounds' perssure. The tender has roller-bearing journals, fifty-pound coal capacity and carries forty gallons of water. Weight of engine, ready to go, is 2800 pounds.

Besides No. 99, the road has three open-air coaches and half-a-mile of 16½-inch gage track, built in a circle. Iron is of eight and twelve pound rail, obtained from Salt Lake City and from a historic mining camp at Tuscarora, Nevada. The coaches, ten feet long, have an eight-passenger seating capacity (two across), with two-wheel trucks under each end. Journals are roller-bearing with alemite fittings.

When Paul Russell is in Elko, he goes out to the Western Pacific, Jr. right-of-

way, fires up and prepares for the afternoon and evening runs. He backs Number 99 out of her shed and, after steaming up, blows the whistle, which quickly summons the youngsters from all over Elko. It might be added that a large portion of the line's patronage comes from the adult citizenry, as well. The train operates Saturdays, Sundays and holidays, when Engineer Russell is in town, as long as anyone wants to ride.

6

PLEASE *print information on a new branch of the Louisville & Nashville, in the Letcher County coal fields of eastern Kentucky, which I saw under construction last year.*

This line is the Rockhouse Creek Branch. The project, authorized by the ICC on January 24, 1947, involved construction of about 16.7 miles of line extending from Duo, on the Eastern Kentucky Division, up Rockhouse Creek, to a large area of undeveloped coal lands. Cost of the branch is in the neighborhood of two million dollars. Expected movement over the line will approximate 500,000 tons the first year after completion, with an increase to 1,200,000 tons by the fifth year of operation.

7

WHAT *is the basis on which railroads are paid for transporting United States mail?*

Railroads are paid on a space basis, regardless of the weight of mail carried. A railroad enters into a contract with the Post Office Department to carry a specified number of mail cars daily in certain trains over a particular railroad mail route. Although mail cars are owned by the railroads, they must be built according to Post Office Department specifications. On many light traffic lines, where full-sized mail cars are not needed, the railroads provide compartments or space in baggage, express or combination cars for the handling of mail.

8

CAN *you tell what locomotive was regularly used to haul the Philadelphia Wilmington & Baltimore's celebrated Lightning Train between Philadelphia and Baltimore in the 1850s?*

This engine is said to have been the *America,* a 4-4-0 type, with the large balloon stack, characteristic of the period. Constructed by the New Castle Manufacturing Company of New Castle, Delaware in 1854, she was a typical standard passenger engine of the period up to the modernization by the Mason engines of 1857. Comparatively large for the time, the *America* weighed 51,000 lbs., of which 35,500 lbs. was on her 66-inch drivers. Cylinders measured 17 x 22-inches . .

9

HOW *much ice is required yearly for the hauling of perishable foods by railroad refrigerator cars in the United States?*

Latest figures available, 1946, show that it took thirteen million tons to deliver fresh and unspoiled food to American dinner tables last year. Much of this total is required for pre-icing and initial icing of the cars at large reefer shipping terminals like the Espee's Roseville, California Yard. Less ice is needed for re-icing enroute. Bunkers of some of the larger cars will hold 30,000 pounds of ice. The refrigerated ride is no longer reserved for delicacies. The increased use of frozen foods of all types, and the expanding use of dry ice, particularly in combination with natural ice, has led to the hauling of nearly all food by refrigerator cars. Mechanical cooling units in the cars are now looked upon as a practical development not far in the future.

All photos from General Electric

Locomotive of the Month

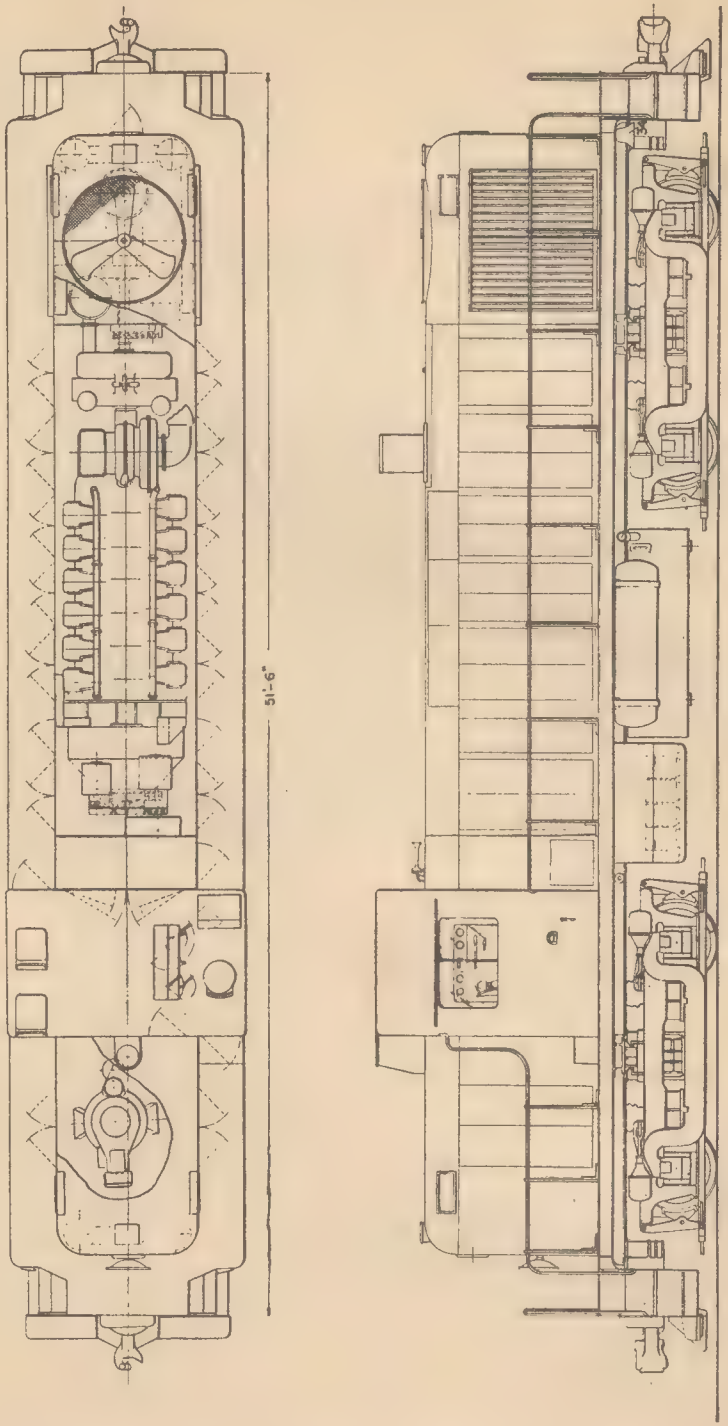
1500 hp. Alco-G. E. Switcher

THE DELAWARE & HUDSON road switching locomotive pictured above is one of more than one hundred Alco-General Electric engines of this new design either operating on or on order for American railroads. Designed for switching, transfer or passenger operations, it is 115-ton, four-axle unit capable of hauling heavy loads at speeds of up to eighty miles per hour.

The 1500 horsepower, turbo-supercharged Diesel engine is of V-12 design, cradled on an underframe of steel plate construction, fabricated by electric welding. Power trucks are of the two-axle, pedestal type, with a GE-752 traction motor geared to each axle. The 10-pole main generator which supplies the motors with 600-volt direct current power is rated at 1500 h.p. at 1000 revolutions per minute.. Using a special winding and current from storage batteries, it acts as a motor for starting the Diesel engine.

The locomotive superstructure which, like the underframe, is of welded steel construction, consists of two hoods, the

ALCO-G.E. 1500-HP ROAD-SWITCHER



longer or forward one housing the Diesel engine with associated electrical and mechanical equipment, together with the radiator compartment, while the shorter or rear hood covers a steam generator for car heating, and the sand boxes. Between them is the operating cab, which has a hardwood floor elevated above the underframe, and is paneled with masonite on the walls, with a wood-lined roof. All windows are of safety glass.

Engine control equipment has been distributed between the control stand and the gage panel in the operator's cab. Especial attention has been given to "packaged" assemblies, with multi-point connection plugs being provided to permit their ready removal for repair and replacement. The control stand mounts the master controls, selector and reverser handles, airbrake controls and gages, load meter and speedometer, and the headlight and rear light switches. The gage panel, just ahead of the engineer, incorporates various engine gages, fan control and low oil pressure and high engine water temperature warning lights. Electrical control equipment, as well as switch for motor cut-out control and ground relay cut-out, are situated in the contactor compartment which forms the forward wall of the cab.

All power reversers and line contactors are electro-pneumatically operated, while other contactors function magnetically. A selector handle on the control stand manually operates transition, both forward and back. There are four traction motor connections: *Series parallel full field, series parallel shunt field, parallel full field,* and *parallel shunt field.* On auxiliary circuits, wherever overload protection is required, manual low-voltage circuit-breaker type switches, with reset feature, are used.

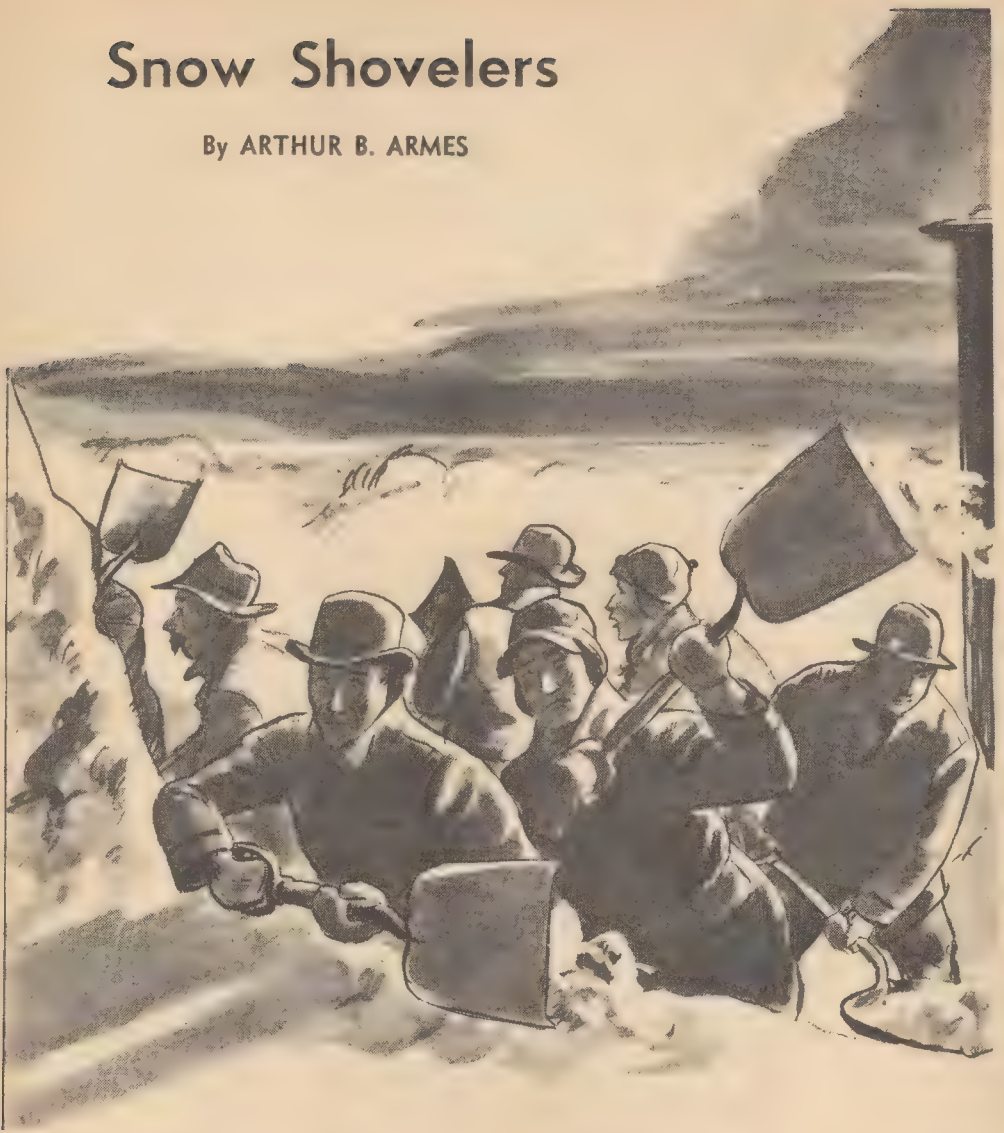
A General Electric electro-hydraulic power plant regulating system automatically governs the operation of the power plant to meet—insofar as is safe and possible—the performance called for by the locomotive engineer. Preset engine speed is held constant; engine torque is limited; and the generator demand is adjusted to suit the locomotive's ability to deliver power at any moment. The system operates stably over a wide speed range and permits the use of the lowest possible engine speed commensurate with power requirements. The use of feedback from the electrical load allows the control to anticipate speed changes which would result from changes in generator demand.

Specifications

Length	55' 6"
Height	14' 5"
Width	10'
Weight	230,000
No. of Motors	4
Wheel Diameter	40
Factor of Adhesion	.25
Tractive Effort—	
Starting	57,500
Continuous	42,500
Horsepower	1500
Maximum Speed	80

Snow Shovelers

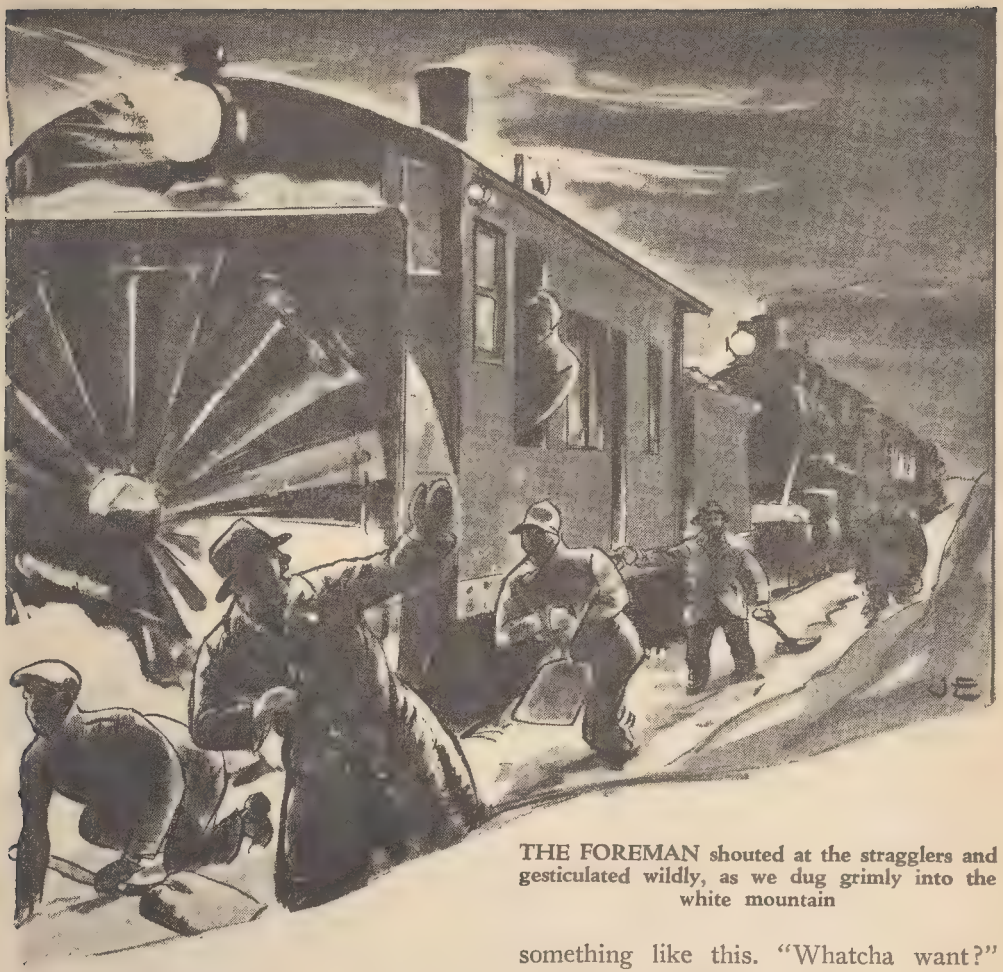
By ARTHUR B. ARMES



CHICAGO was no place to be that December night in 1907. Yet there I was, a footloose young gandy dancer, trying to work an angle for a room for the night. I wasn't alone. A gang of us skidroad drifters were fogging up the odiferous lobby of a cheap boarding house, one of the many scattered along West Madison Street, the Railroad Avenue of the Windy City. I've been in so many across the continent, that it's hard now to remember the name of this particular scratch-house.

Shabbily-dressed guests were seated along the walls of the spacious reading room. Some sat quietly reading newspapers; others glanced at one another with the meaningless regard of strangers. A few were milling about restlessly, unable to find vacant chairs in the crowded room. The air was vibrant with the hum of conversation.

Obviously, a good number were down-and-outers. These non-paying guests sat sleepy-eyed, staring intently at the floor, as though somehow they could find there



THE FOREMAN shouted at the stragglers and gesticulated wildly, as we dug grimly into the white mountain

the answer to how to get bed money. It was too cold to walk the streets all night, "carry the banner" as they dubbed it. Yet they dreaded a night in the municipal flophouse. One coughed, perhaps remembering the sulphur fumes he'd inhaled from the clothes fumigating vault on a previous overnight stay at the Muny. I had my own memories of the last time I'd accepted the hospitality of the taxpayers of the City of Chicago.

You boomer track stiffs probably remember the smart-alec politico, who presided imperiously at the receiving desk's cubbyhole window. His greeting to impecunious guests was to snap a rapid-fire line of questions at them. Masking his youthful face with a scowl, he'd begin something like this. "Whatcha want?"

"Bed," I breathed meekly.

"Whatcha name?"

"Richard Brown." I gave a flag.

"Whatcha line?"

"Gandy dancer," I replied, lapsing into rail lingo.

"A what!" he growled.

"Railroad laborer," I corrected.

"Where from?" His scowl deepened.

That would have been too long a story. I thought quickly and said, "Davenport, Ioway."

"How'd yer come?"

I was getting tired. "Train," I admitted truthfully.

"Huh!" he snorted. "Side-door Pullman. Whatcha say yer name was?" He didn't even give me a chance to think back.

"Richard Green," I stammered, getting my flags mixed up by his over-bearing manner.

"You're a damn liar," he blasted. "You sezs your name was Brown." Abruptly his boyish face reverted to one of judicial calm. "As a rule," he advised me solemnly, "we send all liars out to Bridewell (the house of correction). In your case, I'll make an exception. Go down to the shower, then to bed. An' don't disturb the other lodgers with your snoring."

I'd just reached that low point in my reflections, when fate intervened in the form of a husky cinder dick from the Chicago & North Western. His broad frame reached gigantic proportions as he stood in the doorway, clothed in a glossy fur coat. Before he spoke I had taken in his stern face, hair grayed at the temples below the brim of his Astrakhan hat, the grim-set jaw. After I heard his short, gruff speech, I was no longer interested in his appearance. I was out of my chair, following him like the children of Hamlin followed the Pied Piper. It meant one night's escape from the city flophouse.

"I want thirty snow shovelers," announced the Northwestern special agent.

THE WORDS *snow shovelers* had an exhilarating effect both on me and the rest of the lethargic crowd. Newspapers were thrown aside. The down-and-outers came out of their dream state to offer their services. As I mentioned before, it was the beginning of the depression; therefore, the cinder dick had no difficulty at all in recruiting the required number.

As we passed through the doorway, he checked us off quickly. Some were warmly clad, others had little. The cop was either too rushed to examine their clothing to see if it was fit for the frigid task, or else he didn't care. Once outside, the nondescript crowd followed him down the street, trudging silently on, occupied with private thoughts.

Every blast of the icy wind stung our faces, as we pushed against the blinding snow. We imagined we were on our way to a City Traction snow job, clearing the electric line for the next morning's commuter traffic. But that reflection vanished, as we entered the C&NW depot. There the special agent halted before a stack of iron scoop shovels, motioning each of us to pick one up. Instantly, there was a rush to secure a tool, since it entitled the holder to employment.

At this disorderly proceeding, the road detective's features clouded. His lips twisted as he muttered, "Dawgonit, I'll freeze th' hide offa 'em before th' night is over."

He had directed the remark to a nearby sheepskin-coated brakeman. The brakie's blue eyes narrowed. He neither smiled nor replied; without a word he strode off.

A few floaters without shovels stood glumly back, while the bull ushered us into the interior of a special work train consisting of one coach and caboose. The steam-heated cars thawed us out after our walk from the lodging house through the zero blasts coming off Lake Michigan. The Windy City had not belied her name on that hike.

Soon the con gave the highball. The hogger returned an answering whistle and the special chugged north into the black night with all traffic rights, giving shrill warnings at highway crossings. On the outskirts of the city's residential district, lights flickered here and there, then receded, until the landscape was white, broken only by the starless black sky above. So for an hour, the train sped on at a fast clip, while the extra gang sat in stoical silence, depressed by thoughts of the tremendous cold outside.

All of us were speculating inwardly about what we were in for and where we were headed. The conditions? they were obvious. Looking out the window we saw the continuous white banks rolling in gentle undulations that paralleled the right-of-way. My own gaze roved upward atop of the banks. A howling gale raised flurries of snow like crests of breakers at sea. And the telegraph wires strung from pole to pole were long, slender threads quivering in the wind.

The farther north the train roared, the more intense the blizzard became. The coach was now as foggy and smelly as the lodging-house room. Ragged passengers tried to settle their nerves by puffing cigarettes and foul pipes, but there was no shutting out the sound of the storm.

A beet-faced guy in a torn, blue sweater broke the tenseness. We were momentarily cheered, when he and a rusty-haired assistant announced, "Caw-fee!" The pair ladled out the hot drink from a ten-gallon milk can. Another unshaven fellow volunteered as a none-too-clean waiter. As his veinous, grimy paw passed out sandwiches, most of the hungry recipients were oblivious to his unsanitary oversight. But when he passed me, I noticed a newspaper peeking out from the "V" of his greasy vest for insulation against the cold, while a bead of shiny moisture hung precariously on the end of his bulbous nose.

THE WORK special roared on steadily into the gloomy night. Abruptly the man beside me broke a long moody silence. A vari-colored, worn mackinaw encased his corpulent bulk.

"Didya lamp the swell overshoes that cinder bull had on?" he asked. Then focusing his eyes dejectedly on his own cracked uppers for a moment, he added, "Why, didn't he throw on some gunny sacks, so we kin wrap our feet in burlap?"

I sat quiescent, speculatively eyeing my own brogan-shod feet.

His seamed face turned to the wind-driven snow pattering on the coach window. "Hell!" He shivered. "It's cold ernuff, outside, t' freeze th' lunch hooks offa brass monkey."

"You ain't tellin' me anything new," I replied irritably, wishing for a more cheerful tone. "I'd sure like to get a piece of eating money out of this job, so I could head south where it's. . . ."

My remark was cut short by a hoarse request.

"Say, Lard! got th' makins?" A cadaverous-looking gent stood before us, his puny torso wrapped in two dress coats, the oversize one worn outside the other with a large safety pin dangling from the open collar. He, too, had a printed section of *The Chicago Tribune* protruding conspicuously from the tip of his weskit. With a grandiose gesture, Lard handed over the makings, repeating his dismal observation about the weather.

"Yuh sed it, pal," acknowledged the stranger, bracing himself against the swaying car and carefully manufacturing the cigarette. "We'll all be in th' horse-spittle by th' mornin' wit our feet froze."

Pausing to light his coffin nail, he took a deep drag before he spoke again. "A bozo up there," he jerked his bullet-shaped head up the coach aisle, "sezs the shack told him th' *Mail* is stuck in a big snow pile, an' us monkeys have gotta dig 'er out."

"Suffering cats!" ejaculated Lard, "wot in dis weather?"

As if in answer, the work train stopped with a jerk, throwing the lean-jawed smoker off his feet. Then the stentorian voice of the special agent echoed through the coach.

"Fifteen of yer at the far end pile out, an' git that snow outa the way. The rest of yuh stay behind for the next shift in twenty minutes." He stood in the center of the aisle, keeping the gangs separate.

Far-end passengers fumbled with nervous fingers to fasten safety pins to their coat lapels, button threadbare coats and settle ear flaps. Some hands were covered with warm woolen mittens; other less fortunate drifters pulled cotton socks over their grimy paws. I got into my second-hand frayed overcoat, girdled the waist with a length of cord and I was ready.

In the vestibule, the brakie slammed the step platform upward. The resounding *bang* was followed by a sharp gust of wind which swept ominously through the coach. I was in the first shift. We filed out, stepping down into the darkness and crunching knee-deep in the snow.

AS THOUGH coming through a funnel, the icy wind howled along the narrow corridor cut in the right-of-way.

Ahead, the snow plow's headlight cast a beam on what seemed to be a gigantic white mountain. Lantern lights flickered in the ghostly darkness around us. Then suddenly the foreman, dressed in black fur, loomed up like a big shaggy bear. He yelled an order; his voice was carried away by the fury of the storm. Unable to make himself heard, he gestured with his mittened hands for us to go forward and get busy on the huge drift.

Our gang scooped up shovelfuls, paced back a few steps and tossed them skywards. The fast wind carried the snow over beyond the bank. After we'd cleared away part of the face of the obstruction, the snow-plow hogger blew a warning blast for us shovel stiffs to get out of the way. Then he blew shrill and loud, as if in challenge to the enemy ahead, and charged into the drift.

The big snow pile stood defiantly; the plow backed away hissing steam. Again we were ordered forward to pitch scoopfuls upward. Some of the poorly-clad guys clamored to get inside to the steam heat of the varnish. From his vantage point on the lower coach step, the special agent drove them back, his lips framing curses to spur them on to greater effort.

After another short spell, our twenty-minute shift was up. The cinder dick waved us back to the coach and we needed no second urging. We mounted the ice-crusted, slippery coach steps hastily, shouldering each other roughly to get away from the killing cold. Inside, several of the half-frozen guys had apparently gone nuts from the cold. They flung their scoops wildly in all directions.

Crash went a window, as a shovel handle shattered the glass. We danced around, stamping our feet in an attempt to restore circulation to our extremities, rubbing our frosted noses and cheekbones. Meanwhile frigid air poured in through the broken window.

The second shift had been herded outside. Behind the work train and snow plow the delayed *Mail* blew shrill, loud and short imperative blasts. The demand seemed to echo. Uncle Sam's mail would permit no long delay, whatever the odds. The snow-plow hogger returned an answering toot. Again he charged the mass of white crystals and, with a deafening roar of triumph, broke through, steaming ahead. Her last effort, plus our aid, had cleared the way.

In a mad rush, the second shift came aboard, flailing their chests, stamping their feet, rubbing their hands, cursing the cold coach. *Crash.* A window on the opposite side smithereened as a handle hit it. The volume of cold air whistling through more than doubled as cross-ventilation went to work on the car.

The work train tailed the snow plow to the next siding to let the *Mail* roar by. Heading north, it whistled as though in thanks for the help. The snow blockade was broken. The Northwestern had kept its contract that mail would go through despite blizzards, hell or high water.

We passed the remainder of the night sleeplessly, preoccupied with our own thoughts. Steam heat from the coach radiator kept our feet warm, but from the waist up, we were chilled by the draft from the broken windows. At dawn, the storm had abated. We arrived back at Chicago, our eyes dark-rimmed from lack of sleep. For what we'd gone through, some of us reasoned "we were entitled to a little immediate compensation."

"Where's d' cop?" someone asked tentatively.

"He's still asleep in th' crummy," opined our gaunt-faced companion, giving the caboose a furtive eye.

Not trusting the road's generosity, we retained possession of the company's shovel. The collateral was traded at skid-road second-hand stores for the wherewithal for an eye-opener, a ten-cent shot of good quality whisky, followed by a Pittsburgh Joe's dime breakfast, consisting of fried country sausage, wheatcakes, and a bowl of java.

LATER that morning we assembled at the Chicago & North Western paymaster's office for the "coffee an' " money we had coming. While idling around,

WHILE the cinder dick bellowed orders, we filed slowly out to meet the icy blasts

the lanky fellow croaked hoarsely, "Say, Slim! Seen Lard?"

I shook my head negatively.

"Cripes!" he groaned. "Lard must be up in that snow yet."

Further discussion on the whereabouts of Lard was interrupted by the paymaster's sliding up his paywindow.

"Line up, fellers!" he ordered. "Show yer identities."

The middle-aged, ink slinger tipped back his dark green eyeshade visor and made a quick survey of the crowd. "Who's first?" he demanded.

Not one of us could produce anything to show we were former C&NW employes. My sidekick took over the explanations. "No pencil pusher had taken our names," he informed the paymaster. It had been such fast action the night before that small paper detail had been sidetracked.

The clerk's long, thin fingers fidgeted with the elastic band of his black sateen sleeve protector. His pallid brow contracted, while he pondered on how to handle the situation. Finally, the special agent barged in. "How's everythin'?" he asked.

While the paymaster protested volubly at the muddled state of affairs, the cop stood by mediatively, his chubby fingers packing tobacco into the bowl of a silver-banded briar pipe. Suddenly, his hard-set countenance lit up with an idea. Turning on us, his gray eyes roved over our faces individually. They settled on a plug ugly he identified as a member of the extra gang.

"Here you," he directed. "Put yer finger on those that were there."

The tough guy pointed out all his friends that weren't there first. Then we who really had been there got ours. As soon as we had our money the motley group scattered in all directions like wind-blown paper. Consequently, I never did find out what happened to Lard.

Rail Photographic Service

NEW RIVER—Kanawha gateway to the Ohio valley gives C & O's *Alleghenies* a down-hill road to the west. Here's the 1609, Russell-bound with 11,000 tons

" . . Mrs. Mokowski . . . . It seems that our engineer on No. 508 sold the engine to your child for an extremely low sum . . . !"

Flagler System Motive Power

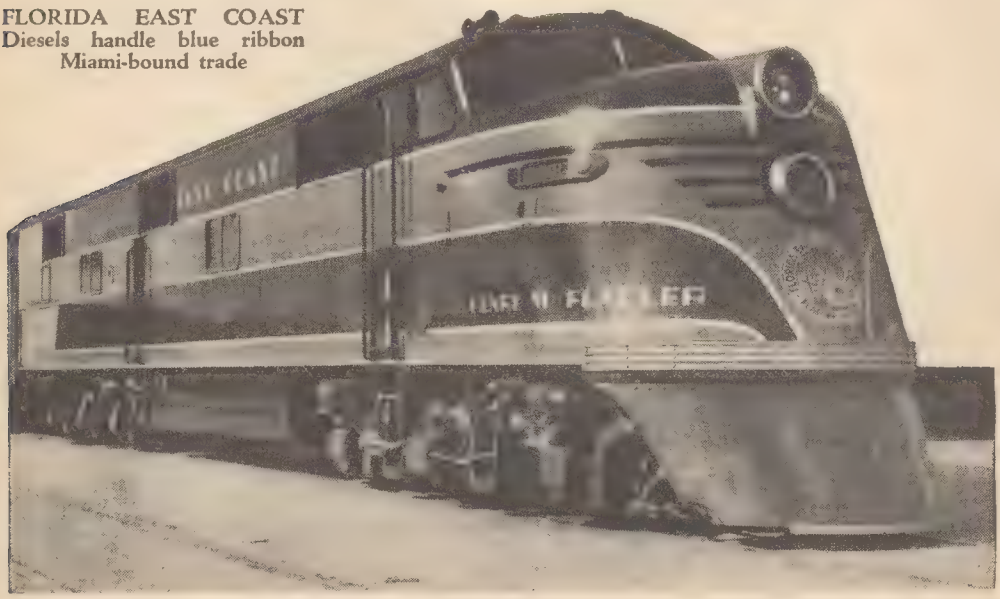
By DAVID P. MORGAN

IF YOU'RE tired of cold weather and freight hogs decorated with Coffin feedwater heaters, domes built to carry sand for a Mallet and not a 2-8-4, and Pennsy banshee whistles, then pack your grip and climb aboard the *Florida Special* to the land of waving palms and eternal sunshine. Not only that, brother, you'll be in the home country of some of the finest 4-8-2s that American Locomotive ever assembled. Big jobs, with graceful boilers on 73-inch drivers, Worthington feedwater heaters, and long, trim 12-wheel tanks. All this plus a guarantee of no soot, no cinders.

The line? Florida East Coast. The prime mover? 400-series Mountains. Together, they're the perfect cure for all the railfan's winter season blues. For there is no greater sight in railroading than one of these handsome dual-service Alcos wheeling a fruit block north along the FEC's double-tracked speedway at sixty-five per, under an impressive exhaust of oil smoke and shattering sound. Wet, sticky snow may spoil your chances of capturing a Pere Marquette Mike on film in the yards at Grand Rapids, but that won't prevent you from getting a clear print of a husky Flagler 0-8-0, shuffling cars in the sun-drenched garden at New Smyrna Beach. Diesels? Yes, FEC has a bountiful supply of them. But in the winter season you'll find plenty of varnish trade still geared to the flashing rods of reciprocating steam power. And Electro-Motive hasn't yet captured the freight traffic.

If you have the pioneer urge to be another Jim Hill (or should one say, another Henry M. Flagler?), you might be able to ride the hack of a way freight over the road's brand-new 29-mile cutoff, connecting Ft. Pierce with the shores of inland Lake Okeechobee.

Everyone is familiar with the system's bold fight to send its line across the ocean to Key West, a plan executed only after a terrific expenditure in lives and cash. Still surprisingly few know much about



FLORIDA EAST COAST
Diesels handle blue ribbon Miami-bound trade

an equally fascinating branch of FEC lore, its motive power. The supreme and amusing fact about Flagler System prime movers is that of the existing engines, built originally for FEC, most are now working for somebody else. You'll find them thundering up through the Feather River Canyon out on the Western Pacific and rolling passenger traffic on the West Point Route. Still others are turning in mileage for the Cotton Belt, and can be seen easing into the Union Station at Dallas with the *Morning Star*. Across in Georgia, FEC Pacifics are to be found working freight and passenger traffic over the iron of such lines as the Atlanta & St. Andrews Bay, Georgia & Florida, and what was once the independent AB&C—now the Coast Line's Western Division.

Travel down into Old Mexico, and you can focus your Graflex on FEC hogs now working for the National Railways. Fourteen 400-series 4-8-2s went to the NdeM in 1945 alone. Replaced by Diesels in the United States, they're doing much to revamp Mexico's rail network.

Naturally, the Flagler System would like to be operating with a traffic level that required the use of all these engines. If the fabulous Florida boom had never exploded, such might be the case in 1948. But the magic bubble of fortune was pricked, and "The St. Augustine Route" found itself in the unhappy position of being loaded with brand-new motive power —much of it unpaid for—with only a trickle of traffic to support it. Hence, the depression years found FEC selling almost-new locomotives to a score of roads, both domestic and foreign. Introduction of Diesel power crowded more of the 4-8-2s off its books.

The road's current roster represents a well-balanced fleet of steam and Diesel power. It includes two extremely graceful old Pacifics, a single 0-6-0, fifteen Mikes, and twenty-five 0-8-0 yard goats. The popular dual-service 4-8-2 comes in three series of varying dimensions: seven of the light 300-series; seventeen of the 73-inch drivered 400s; and twenty-one of the heavy, husky 800-series.

Twenty-one 2000 horsepower Electro-Motive passenger Diesels carry the FEC's tropical color scheme of red and yellow hues. They are made up to *A-B-A* 6000-horsepower combinations when necessary, to handle the heavier trains that run with twenty cars. When FEC first purchased Diesels, it pooled its units with the Coast Line in through Washington-Miami *Champion* service. This resulted in Flagler locomotives parading into the nation's Capital and ACL purple-silver powerplants easing across downtown streets of Greater Miami. Now each system restricts even the Diesel's long-winded jaunts, and all power is changed during a stop at Jacksonville.

A traffic problem, more or less peculiar to the Florida East Coast, has made the road's neat timetable look more like an enlarged Blue Island folder of the Rock Island's comprehensive Windy City suburban service. Even the schedule of the Chicago streamliner, hottest daily scheduled train over FEC's 346-mile main line, looks more like the timecard of semi-weekly CNR local. The reason for this type of service (*City of Miami, Dixie Flagler* and *Southwind* all make sixteen regular stops down the coast) is simple: each of these intermediate stations does a thriving tourist trade.

The southbound *Gulf Stream* usually carries racefans for Daytona, folks who want to see the greyhounds sprint at Hollywood, and perhaps a few passengers for the super-exclusive Boca Raton Hotel. To make all these stops, and still keep time, was a problem that brought the Diesels in force. In this motive power, FEC found a prime mover that could accelerate rapidly, maintain high speeds for short distances, and then make that next inevitable resort stop. Some of the Diesels are running up better than 20,000 miles a month. All are shopped at Miami's Buena Vista roundhouse.

Even though Flagler steam power is rather standardized for a road of its size, the careful observer will find enough rebuilds among almost any class to keep his camera busy. Numbers 819-822, for ex-

ample, have been equipped with bundle-type feedwater heaters, giving them a sharp similarity to lighter New York Central Mohawks. Another of the series, Number 803, has been equipped with Timken roller bearings on the rear delta trailer and on all tender axles. This big 4-8-2 is now known as the Holy Roller.

But you'd better hurry on down, or by the time you get here the FEC may have done a vanishing act, along with AB&C. With the St. Augustine Route now in process of reorganization, two groups are fighting for control—the connecting Coast Line, and the duPont Estate. Florida East Coast proudly advertises itself as "A Florida Industry and Institution," and the local Brotherhoods and most Floridians want to keep it just that.

Meanwhile, the Atlantic Coast Line points out that greater economy of operation would be achieved by the merger. And naturally ACL would like to enter Miami on its own rails, right along with its jazzed-up rival, Seaboard Air Line.

For the present, Florida East Coast remains one of the South's finest railroads. Its motive power is exclusively oil-burning. It operates a fleet of reclining seat, modern coaches, both streamlined and heavyweight. And it has just finished laying new 112-pound rail down its double-tracked main line, which is protected by automatic color block signals.

But head south, yourself, and view this A-1 carrier firsthand. The road that went out to sea and failed, has done pretty well on the land.

LOCOMOTIVES OF THE FLORIDA EAST COAST

Steam Locomotives

Numbers	Cylinders	Drivers	Pressure	Engine Weight	Tractive Effort	Builder and Date
		0-6-0 (Switcher) Type				
210	20 x 26	51	180	158,000	31,200	Richmond, 1924
		0-8-0 (Switcher) Type				
256-263, 266	25 x 28	51	175	216,000	51,000	Richmond, 1925
268-279	25 x 28	51	175	218,000	51,000	Richmond, 1926
		2-8-2 (Mikado) Type				
701-715	26 x 30	63	200	296,000	54,725	Schenectady, 1925
		4-6-2 (Pacific) Type				
147, 148	22 x 26	68	180	204,000	28,300	Richmond, 1920
		4-8-2 (Mountain) Type				
301-303, 306, 307 309, 313-314	25 x 28	68	200	287,000	43,100	Richmond, 1923
421-432	26 x 28	73	200	318,500	44,100	Schenectady, 1923
435-440	26 x 28	73	200	322,000	44,079	Schenectady, 1925
801, 803-823	28 x 30	69	210	356,000	60,800	Schenectady, 1926

Diesel Locomotives

Numbers	Drivers	Horsepower	Engine Weight	Tractive Effort	Builder and Date
		"A" (Cab-control) Units			
1001-1002	36	2000	297,000	50,100	Electro-Motive 1939
1003	36	2000	302,820	51,020	Electro-Motive 1940
1004-1005	36	2000	305,000	51,400	Electro-Motive 1942
1006-1017	36	2000	310,700	52,100	Electro-Motive 1945
		"B" (Booster non-cab) Units			
1051	36	2000	300,400	50,600	Electro-Motive 1942
1052-1054	36	2000	300,000	50,400	Electro-Motive 1945

(Compiled by the author with assistance of R. B. Hunt, FEC Chief Mech. Officer)

Photo by Tony Kozla, 628 N.W. 3rd Ave., Ft. Lauderdale, Fla.

HEAVY SWITCHER at Miami's Buena Vista Shop. She was built by Richmond (Alco) in 1925

SCHENECTADY MIKADO, one of fifteen handling Flagler System drags

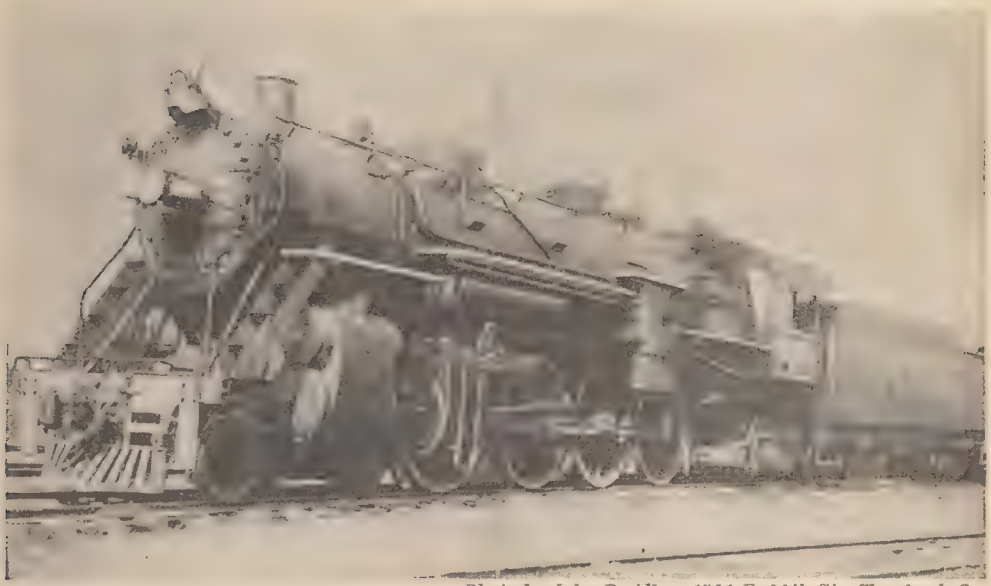


Photo by John B. Allen, 1761 E. 90th St., Cleveland, O.

MOUNTAIN ENGINE for the flatlands. She's the 425, basking in semi-tropical sunlight at New Smyrna

ALONG THE IRON PIKE

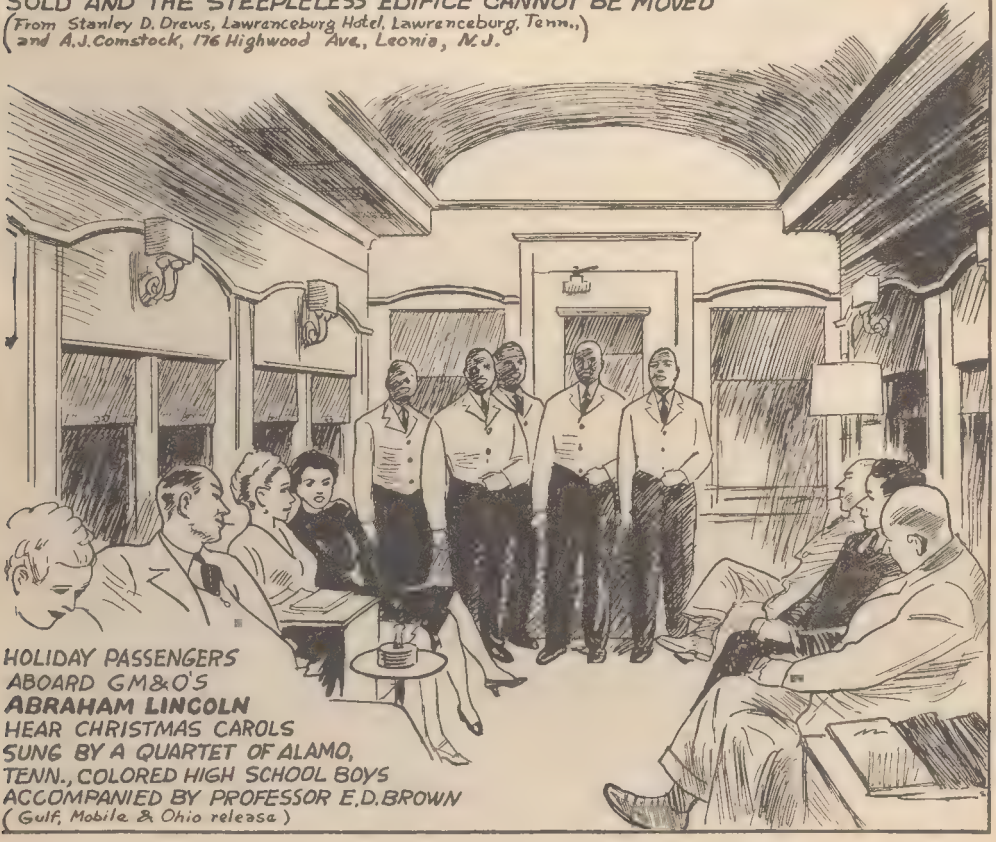
by JOE EASLEY

LOUISVILLE & NASHVILLE EMPLOYE BERT HURLEY, WHO RUNS AN ELEVATOR IN THE ROAD'S GENERAL OFFICES AT LOUISVILLE, KY., PAINTS A HUGE CHRISTMAS CARD FOR EVERY CAR IN THE BUILDING EACH YEAR. IT'S BEEN HIS WAY OF EXTENDING GREETINGS TO **OLD RELIABLE** WORKERS AND PATRONS EACH YULETIDE SINCE 1916

CABOOSE FOR PAPOOSE. WHEN W. PARKER LYON OF ARCADIA, CALIF., **PONY EXPRESS MUSEUM** ASKED ESPEE'S BIG CHIEF A.T. MERCIER FOR A CABOOSE TO GIVE TO HIS SON FOR CHRISTMAS, HE GOT AN HONEST-TO-GOODNESS VIRGINIA & TRUCKEE CRUMMY WHICH W. P. LYON, JR., AGED 51, PROMPTLY COUPLED TO THE MUSEUM'S OLDTIME EXHIBIT TRAIN

(From Alvin A. Fickewirth, 200 E. Columbia St., El Monte, Calif.)

COMMUNICANTS OF ST. WILFORD'S PARISH, NEAR FRANKFORT, ILL., WILL ATTEND CHRISTMAS SERVICES FOR THE LAST TIME THIS YEAR IN THE OLD RAILROAD COACH WHICH HAS SERVED AS THEIR CHURCH FOR THE PAST EIGHT YEARS. THE LAND ON WHICH IT RESTS HAS BEEN SOLD AND THE STEEPLELESS EDIFICE CANNOT BE MOVED
(From Stanley D. Drews, Lawranceburg Hotel, Lawrenceburg, Tenn., and A.J. Comstock, 176 Highwood Ave., Leonia, N.J.)



HOLIDAY PASSENGERS ABOARD GM&O'S **ABRAHAM LINCOLN** HEAR CHRISTMAS CAROLS SUNG BY A QUARTET OF ALAMO, TENN., COLORED HIGH SCHOOL BOYS ACCOMPANIED BY PROFESSOR E.D. BROWN
(Gulf, Mobile & Ohio releasa)

On the Picket Line

By BOB WHITE

KINGSNIPE Joe Verna had other work to do at Owosso, Michigan, besides repairing the fence on the Grand Trunk Western. That is, until Joe wrote R.E.R., the sub-division mountain lion, that Number 56 "kill'um one sheeps three times today." If these old fences could talk, many a gandy would go to work with a red face.

The old picket line has served many purposes. Down at Marfa, Texas, I found the Southern Pacific once used a wire-fence telephone hooking between the section houses between there and Valentine. Sometimes during sleet storms, trackmen use pieces of fence wire to join the broken wires hanging from the telegraph poles. The big noise in the depot

tickles the bug, finds it dead, and calls out the section crew to make repairs till the linemen come.

Rule 52 in the Michigan Central Maintenance-of-Way Standards, published in 1896 states: "Foremen of repairs are instructed to remove at once from the right-of-way any stock which may have intruded there, and report to the road-master any attempt made by unauthorized persons to enter the right-of-way with teams or stock."

Now there are some animals, like John Adgate's cows here at Saranac, that no fence can hold back. To get around this type of animal the law usually requires that sectionmen make the fence as "bull-proof" and "hog-tight" as possible.

WITH a wide open throttle, the teakettle made a flying switch, the bull taking the siding

Where Joe lost his sleep at Owosso, the Santa Fe had two sheep that were very much alive. Tucker and ABC earned their feed by leading other sheep into stock cars. When they had completed the job at one station, Kingsnipe A. C. Robison would load the pair on his motor car and haul them down the pike to their next job. C. A. Weise, the lightning-slinger at Menard, Texas, gives these two sheep credit for loading 60,000 animals during May, 1945, alone.

Now the picket line does more than just keep sheep off the tracks. We have the slide detector fence, also. To prevent train accidents due to falling rocks or earth slides, electrically charged wires are made serve as detectors. If a rock or slide breaks the fence wires, a relay is released and stop signals set to halt all trains.

The gandy doesn't fix this fence but what is the difference? He has to clean up the rock or earth anyway. He can't win on the picket line.

I wonder if any boomer gandy remembers the high-tension fence we made at Carrothers, Ohio. The Hecker-Moon outfit had the job of double-tracking the Pennsylvania there in the late 1920s. The ground was frozen deep that winter; we had to blast for the crossing. They laid in plenty of powder, put some ties over the top to keep rock from flying, and touched it off.

Guess they had a little too much powder! That explosion blew off the ties, shot a wire up on the high-tension line and down it toppled. For a while hell broke loose, but fortunately no one was hurt but the picket line. The power wires landed on the fence and made it plenty hot, until the juice men got out there and fixed things.

I've been on some tough picket lines with the late "Blood and Guts" Armored Division in Europe. Still the worst scare I ever had came from a little old cow. Spring thaws had raised the streams up dangerously high under the bridges, and I was watching the track. The night was especially dark. For all the good that company bug torch was, I'd have been ahead if I'd carried no lantern at all.

Reaching John Adgate's crossing, about ten feet from Hunts Creek Bridge, I ran head-on into that cow. That old milking machine just let out a long *m—o—o*. But before the breath was out of her, I was up to my ears in that creek.

MY NEXT biggest scare was the time I hung the super on the picket line by the seat of his pants. Frank Tranzor was superintendent of track and I was running the Kalamazoo for Clark's gang of ironmen. Frank often had the steel gang motor take him places since that pop-wagon could make a mile in fifty-seven seconds. It happened around in 1927, that the pair of us set out from Flint for Davison, Mich.

The derail on the Big Valise and Poor Mary between Flint and Belsay is operated from a tower a mile away. As I approached it Frank hollered, "Go ahead. It's open." Well it was open, but right then they threw the switch against us. Down the bank we hurtled, Frank landing on the picket line, the double-barb holding the seat of his trousers in a vice-like grip. I remember how he raved afraid he might lose some precious skin.

When an animal is hit by the high wheelers, it's always the kingsnipe's headache. First he has to find the owner and break the sad news. Next he must dig up two disinterested persons to have the victim appraised. Having taken care of this if the owner doesn't haul it away—and they seldom do—the gandy dancers start digging the grave.

It's pitiful to see those cows lowered into their graves. Of all dumb-looking animals, the cows take the prize. They look just like a head of cabbage stuck on a fence post. You should see them stand there rolling their big eyes and chewing their cuds. I believe their jaws move faster than some of those old slave driving railroad chain-gang kingsnipes. However, you can't trust those lady cows be-

cause the grass is always greener on the railroad side of the fence.

I'd just taken over the section a week, when along comes the ballast-scorcher and starts an argument with the cow. The train won; so after the usual pencil-pushing, Gerald, Ed and Louie started digging. It was late fall, and the gravel-agitators soon had it started down. I walked along the track to see how many feet it was from nearest milepost, and to look things over. Upon my return, Gerald and Ed were throwing the dirt out, but behind them Louie was pushing it back in again. It seemed to me like they were just trying to get in some overtime.

It was about time to get back to the toolhouse for the day. Since the weather was cold I let it rest there until morning. The next day, when I returned to the spot with the trio, a surprise awaited me. Someone had finished the job of burying the carcass during the night, and everything had been cleaned up.

I've often wondered what was in that hole. I never did find time to dig down and anyway it was none of my business. My stock report was in, showing I had buried the cow. Still, that gang had steak in their bait-cans for more than a week.

Cows were always a necessary evil along the picket line. Back in the 1830s young Isaac Dripps cussed them. A mechanical engineer, Dripps invented the cow-catcher for the locomotive on the Camden & Amboy Railroad. His first model didn't suit, since the iron spears he had rigged up were rather rough on the milkers.

Dripps' next design was of the bumper type. The wooden guard, somewhat like those used on trucks nowdays, was far better; yet, they still failed to get the animal off the track. Then Dripps came up with the V-shaped catcher. That did the trick.

RABBITS often invade the picket line. Ed Wilkes, Gerald Sherman and myself were making fence repairs at milepost 132 one cold day when Gerald saw a rabbit entering an eight-inch tile under a farm crossing. Ed blocked one end with his hands and told Gerald to poke him out. A few moments later he repeated his order. I touched him that time.

Well the next poke did the trick. Ed caught him right in his arms and got both barrels. That rabbit happened to be a skunk. Rails, that was a sweet smelling rabbit and so was Ed. Still he didn't smell as bad as Gandy Stub Ketchem.

Stub had his gun along one hunting season and took a shot at an arboreal rodent sitting on a fence post. Stub fired both barrels at it and shot the post from under it without hitting that squirrel. I'm sure glad the picket line can't talk!

My friend Jim Watson of California had a bull tale that dates back to 1911 on the OWR&N, now Union Pacific. Jim was maintaining block signals near the little whistle stop of Weatherly, Ore., when a big red bull walked down the pike. Doing a little booming of his own, he trotted on west. Jim realized there was going to be trouble, so set his light speeder off the high iron, since it was too light a vehicle to argue the right-of-way with a mad bull. Jim found necessary business over near the fence, where he could jump through in a hurry.

About this time a whistle sounded and around the curve from the west came a light engine. The hogger, Blinky Morgan, was known to be a reckless sort of a devil who liked to wheel them through. Now Blinky began to whistle at that bull in short, quick toots. The animal stopped, lowered his head, snorting and pawing ballast. This was what Blinky wanted.

The hogger pulled that throttle wide open and let her roll. Well, the bull's head and the joint on that old teakettle made a flying switch, with the bull taking the siding. He folded up and shot bird level with the telegraph strings. When he landed twenty feet from the track Blinky and his engine were rocking merrily on.

Now according to the *nipper's guide,* Blinky Morgan hadn't broken any rule in the company Bible, so he didn't stop.

Jim ran to the bull immediately and to his surprise the battler was still alive and ready to fight. But the bull's head was sure a mess, and his back must have been broken for he could not get up on his hind legs. Jim put his speeder on the rails and went after the gandy dancers.

The kingsnipe had six Hindus as his gang. They boarded the pump-car and went back to the scene of the slaughter. The bull was dead; so the section foreman told the snipes to start digging.

He was in for a surprise. Those snipes just jumped off that car, running and hollering towards the section house. There they grabbed their few belongings and took off towards Huntington—that was the last ever seen of that gang. Those Hindus wouldn't have a thing to do with that bull, since the cow family was very sacred to them. Over in India they let them lie on the sidewalks or come into the stores and houses.

Kingsnipe Young received six Greeks the next day and they buried Blinky Morgan's sparring partner. The fence gang happened to be near with their outfit cars. Soon the picket line's barb wire was back on the posts after the maddest bull Jim claims he ever saw was laid to rest!

"Sure it's too bad *YOU* missed it. . . . I'm only the *ENGINEER* . . . !

MODERNIZATION program of the Dallas Railway included 25 streamlined PCC cars of design similar to Car 609 shown above, enroute to Union Terminal

Electric Lines:

Street Railway and Interurban Listing

WITH the many changes now taking place in the field of local electric railways, including abandonments of several lines, a new and revised list of operating lines is in order.

Since our last complete listing, which appeared in the December, 1945 issue of *Railroad Magazine,* three more states have added themselves to the five that were then without railway lines. These are Idaho, which saw the end of interurban service on its Utah-Idaho Central line on February 15, 1947; Mississippi, whose electric freight line, Gulfport & Mississippi Coast, has been Dieselized; and Tennessee, where Knoxville Transit ran the last streetcar in the Volunteer State on last August 1st. The five states which were without electric railways at the time of our 1945 list, were Delaware, Nevada, New Mexico, South Dakota and Wyoming.

There are additional abandonments in progress on other lines, but we have tried to keep the list of roads and their trackage as exact as is possible under present changing conditions. If mileages appear slightly in error, it is the result of approximation. Those electrics which give freight service only are indicated by an (F) following the name of the place where they operate.

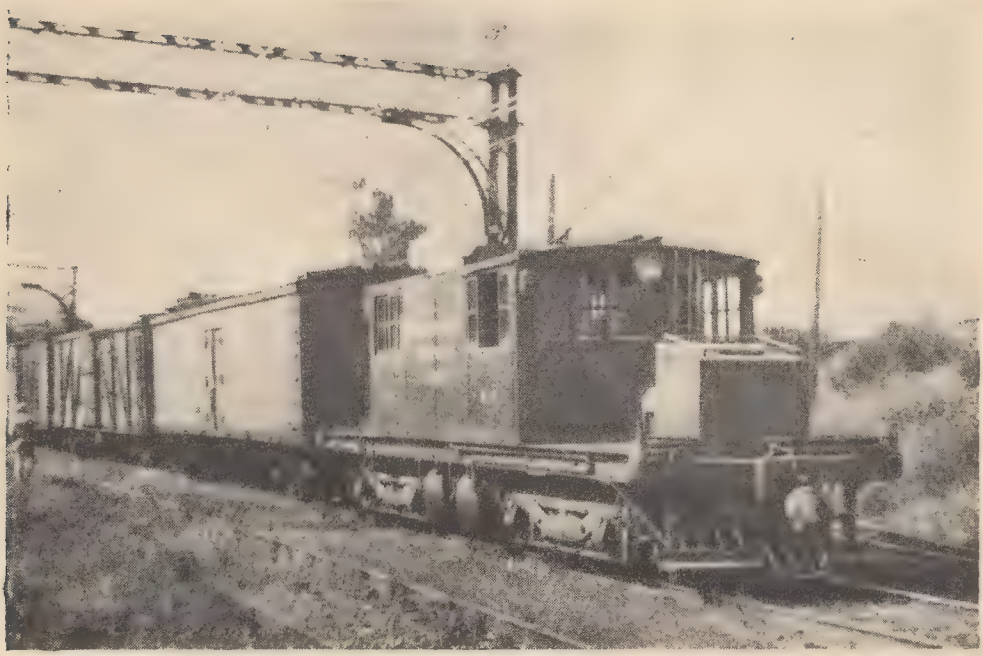
UNITED STATES

Alabama
Birmingham Elec. Co., Birmingham, 120

Arizona
Phoenix St. Ry., Phoenix, 8

Arkansas
Capital Transp. Co., Little Rock, 21

California
California St. Cable RR., San Francisco (cable), 11
Central Calif. Tra., Sacramento, F, 4
Key System Trans. Lines, Oakland, 186
Los Angeles Trans. Lines, Los Angeles, 325
Mun. Rys. of San Francisco, San Francisco, 300
Pacific Elec. Ry., Los Angeles, 800
Petaluma & Santa Rosa, Petaluma, F, 5
Sacramento Northern Ry., Sacramento, 250
San Diego Elec. Ry., San Diego, 30



SWITCHING freight on the Rochester Transit right-of-way, subway built in the Erie Canal bed twenty years ago

Tidewater Southern Ry., Stockton, F, 5

Colorado

Denver & Intermountain Ry., Denver, 25
Denver Tramways, Denver, 120
Ft. Collins Mun. Ry., Ft. Collins, 7
Southern Colorado Pwr. Co., Pueblo, 28

Connecticut

Connecticut Company, New Haven, 80

District of Columbia

Capital Trans. Co., Washington, 165

Florida

St. Petersburg Mun. Ry., St. Petersburg, 28

Georgia

Georgia Pwr. Co., Atlanta, 125

Illinois

Chicago, Aurora & Elgin, Wheaton, 103
Chicago, N. Shore & Milwaukee, Highwood, 265
Chicago Rapid Trans., Chicago, 242
Chicago, South Shore & South Bend (see Indiana)
Chicago Trans. Authority, Chicago, 1000
Chicago & West Towns, Oak Park, 25
Illinois Term. RR., Springfield, 491
Rock Island Southern, Galesburg, F, 21
St. Louis & Belleville Ry., Belleville, (F) 18

Indiana

Chicago, S. Shore & South Bend, Michigan City, 163
Coo's Trans. Co., Evansville, F, 2
Evansville & Ohio Valley, Rockport, F, 13
Indianapolis Rys., Indianapolis, 75
Twin Branch RR., Mishawaka, (F) 3

Iowa

Cedar Rapids & Iowa City, Cedar Rapids, 44
Charles City Western, Charles City, 25
Des Moines & Central Iowa, Des Moines, 80
Des Moines Ry., Des Moines, 50
Ft. Dodge, D. M. & Southern, Boone, 186
Iowa Elec. Lt. & Pwr. Boone, (F) 1
Iowa Transfer Ry., Des Moines, (F) 4
Mason City & Clear Lake, Mason City, (F) 19
Omaha & Council Bluffs St. Ry. (see Nebraska)
Sioux City Trans. Co., Sioux City, 48
Southern Iowa Ry., Centerville, (F), 27
Waterloo, Cedar Falls & Northern, Waterloo, 128

Kansas

Hutchinson & Northern, Hutchinson, F, 6
Kansas City, Kaw Valley RR., Bonner Springs, F, 42
Kansas City Public Service (see Missouri)
Kansas & Missouri Ry. & Tenn., Kansas City, (F) 11

Kentucky

Cincinnati, Newport & Covington, Covington, 25
Louisville Ry., Louisville, 20

Louisiana

New Orleans Pub. Service, New Orleans, 90

Maine

York Utilities Co., Sanford, F, 2

Maryland

Baltimore & Annapolis RR., Annapolis, 42
Baltimore Trans. Co., Baltimore, 275
Capital Trans. Co., (see D. C.)
Potomac Edison Co., Frederick, 40

Massachusetts

Eastern Massachusetts St. Ry., Quincy, 11
Metropolitan Trans. Authority, Boston, 343*

Michigan

City of Detroit, Detroit, 350

Minnesota

Filtration Plant Ry., Minneapolis, 2
Minneapolis, Anoka & Cuyana Range, Fridley, 5
Twin Cities Lines, Minneapolis, 445

Missouri

Illinois Terminal (see Illinois)
Kansas City Pub. Service, Kansas City, 175
St. Francois County RR., Farmington, (F) 10

St. Louis Pub. Service, St. Louis, 300
St. Louis Water Works Ry., St. Louis, 8

Montana

Anaconda Street Railway, Anaconda, 12

Nebraska

Omaha & Council Bluffs St. Ry., Omaha, 100
Omaha, Lincoln & Beatrice, Lincoln, (F) 10

New Hampshire

Claremont Ry., Claremont, F, 6
Springfield Terminal Ry., (see Vermont)
Uncanoonuc Incline Ry., Goffstown, 1

New Jersey

Atlantic City Transp. Co., Atlantic City, 53
Hudson & Manhattan, Jersey City, 20
Philadelphia Transp. Co., (see Pennsylvania)
Pub. Service C. T., Newark and Union City, 80

New York

Hudson & Manhattan, (see New Jersey)
International Ry. Co., Buffalo and Lockport, (F) 100
Jamestown, Westfield & Northwestern, Jamestown, 35
New York City, Trans. Sys., New York, 1033†
Niagara Jct. Ry., Niagara Falls, F, 30
Queensborough Bridge Ry., Long Island City, 2
Rochester Trans. Co., Rochester, 33
Staten Island R. T., St. George, 97
Third Avenue Trans., New York, 175

North Carolina

Piedmont & Northern Ry., Charlotte, 29

North Dakota

Valley City St. & Int. Ry., Valley City, F, 2

Ohio

Cincinnati, Newport & Covington (see Kentucky)
Cincinnati Street Ry., Cincinnati, 220
Cleveland Trans. System, Cleveland, 300
Columbus & Southern Ohio, Columbus, 25
Community Tra. Co., Toledo, 45
Cooperative Trans. Co. (see West Virginia)
Marion Reserve Pwr. Co., Reese, (F) 10
Ohio Midland Lt. & Pwr., Obetz Jct., F, 50
Shaker Heights R.T., Shaker Heights, 26
Toledo & Eastern, F, 11
Youngstown & Southern, Youngstown, 25

Oklahoma

Sand Springs Ry., Sand Springs, 32

Tulsa—Sapulpa Union Ry., Sapulpa, F 15

Oregon

Portland Trac. Co., Portland, 93
Walla Walla Valley Ry. (see Washington)

Pennsylvania

Altoona & Logan Valley, Altoona, 37
Conestoga Transp. Co., Lancaster, 8
Johnstown Trac. Co., Johnstown, 42
Lackawanna & Wyoming Valley, Scranton, 42
Lehigh Valley Trans., Allentown, 120
Philadelphia Suburban Transp. Co., Llanerch, 51
Philadelphia Transp. Co., Philadelphia, 617**
Philadelphia & Western RR., Norristown, 37
Pittsburgh Railways, Pittsburgh, 544
Reading St. Ry., Reading, 10
Scranton Trans. Co., Scranton, 40
West Penn Railways, Connellsville, 131
Wilkes-Barre Trans., Wilkes-Barre, 17

Rhode Island

United Elec. Rys., Providence, 25

South Carolina

Piedmont & Northern, Greenville, 101

Texas

Dallas Ry. & Terminal Co., Dallas, 100
El Paso City Lines, El Paso, 16
Houston North Shore, Houston, 27
Texas Elec. Ry., Dallas, 199
Texas Transp. Co., San Antonio, (F) 1
Waco Trans., Waco, 4 (operates over TE trackage)

Utah

Bamberger Railroad, Salt Lake City, 64
Salt Lake, Garfield & Western, Salt Lake City, 21

Vermont

Springfield Terminal RR., Springfield, (F) 9

Virginia

Capital Trans. Co. (see Washington, D. C.)
Roanoke Ry. & Elec., Roanoke, 15
Virginia Trans., Norfolk and Richmond, 100

Washington

Walla Walla Valley Transp. Co., Walla Walla, (F) 33
Yakima Valley Transp. Co, Yakima, F, 20

West Virginia

City Lines of West Virginia, Clarksburg, 25
Cooperative Trans. Co., Wheeling, 40

Wisconsin

Chicago, North Shore & Milwaukee, (see Illinois)
City of East Troy, East Troy, (F) 7
Milwaukee Elec. Ry. & Tr., Milwaukee, 275

CANADA

Alberta

Calgary Trans. Calgary, 75
Edmonton Radial Ry., Edmonton, 48

British Columbia

British Columbia Elec., 300
Nelson Street Ry., Nelson, 3

MARION RAILWAYS Car 21 at the end of the line in both senses. The whole Marion outfit was abandoned June, '47

Photo by Glenn S. Moe, 728 E. Fairview Ave., South Bend, Ind.

NOT LISTED. Since no private industrial roads are included in our roster of electrics, Singer Manufacturing Company's short pike goes uncredited. ***Left,*** switcher Number 4 at work in the South Bend, Ind. factory yards

●

LAST passenger streetcar line in Oklahoma, the Sand Springs Railway operates approximately 32 miles of trackage. Car 70 ***below,*** loaded to capacity, stops for traffic along well-populated Tulsa route

Manitoba

Winnipeg Elec. Co., Winnipeg, 65

New Brunswick

New Brunswick Pwr. Co., St. John, 21

Nova Scotia

Nova Scotia Lt. & Pwr. Co., Halifax, 27

Ontario

Cornwall St. Ry. Lt. & Pwr., Cornwall, 10
Ft. William Elec. Ry., Ft. William, 21
Grand River Ry., Preston, 18
Hamilton St. Ry., Hamilton, 43
Lake Erie & Northern, Preston, 51
London & Pt. Stanley, London, 47
Niagara, St. Catherines & Toronto, St. Catherines, 80
Oshawa Ry., Oshawa, (F) 22
Ottawa Elec. Ry., Ottawa, 49
Port Arthur Civic Ry., Port Arthur, 20
Sudbury-Copper Cliff Suburban, Sudbury, 8
Toronto Transp. Comm., Toronto, 250

Quebec

Montreal & Southern Counties, St. Lambert, 63
Montreal Tramways, Montreal, 279
Quebec Ry. Lt. & Pwr., Quebec, 48
Shawinigan Falls Term. Ry., Shawinigan Falls, (F) 17

Saskatchewan

Regina Mun. Ry., Regina, 30
Saskatoon Mun. Ry., Saskatoon, 20

NEWFOUNDLAND

Newfoundland Lt. & Pwr., St. Johns, 3

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* *Elevated lines, 58; Surface lines, 285.*
† *Subway and elevated, 633; surface, 400.*
§ *City lines, 40; Port Rly. & Term. Div'n, 53.*
** *Elevated lines, 42; surface lines, 575.*

Car Barn Comments

Steve Maguire

IN THE midst of the rather gloomy news concerning electric railways which we have had to report since the end of the war, comes an indication that the defects of bus operation are beginning to become evident in those places where they have supplanted efficient and capable electric lines.

For instance, in Los Angeles where the Transit Lines, a subsidiary of the indicted City Lines trust, recently made wholesale and unwarranted substitutions of buses on several heavy and important rail lines, the worst traffic tangle in the history of the city came about as a result. But despite requests from the press and public for restoration of rail service, the LATL, has hurriedly ripped up every bit of rail on its private track, thus forestalling an attempt to require them to resume service.

However, plans for rapid transit by rail to the important outlying portions of the suburban areas are being seriously considered by the city. The plans involve double-tracked right-of-way lines built in the center of proposed highways, with operation by Pacific Electric. So, at present it appears likely that, in view of the experience to date with the Transit Lines bus service, a group of rapid transit lines may be built into the outlying portions of Los Angeles.

Farther north, in Oakland, Calif., another plan for rail rapid transit is being seriously considered by representatives of the city, county and local Chamber of Commerce. The proposed railway lines would connect the outlying suburbs of Oakland with the center of that city and would provide a rapid means of entry, via rights-of-way over existing rail lines and over new rail to be constructed. Said Harold D. Weber, former manager of the Oakland Chamber of Commerce, "No area has had optimum development with dependence upon motor buses."

In Detroit, the Motor City, the city-owned transportation system is having its headaches, too. Even while plans to abandon all except one rail line to buses are being carried through, the rise in price of gasoline, once 10.8 cents per gallon and now 14.5 cents, threatens to put bus operation in the red. General Manager Sullivan, who once said buses would be cheaper to operate than streetcars, is now forced to admit, "A one cent increase on a gallon of gasoline will put the DSR in debt."

In other words, Detroit can get ready for another fare rise—to be paid by the public. The DSR transport men guessed wrong, but John Q. Public is going to pay as usual.

* * *

HOUSTON North Shore line, the interurban to Goose Creek, Texas, operated by the MOP lines, is also experimenting with rail cars as possible replacement for the interurbans.

Charles Robinson, 607 8th St., Baytown, Tex., tells us of the experience to date with a new Twin Coach bus outfitted for rail service.

"Installed with headlight, air horn, steel wheels and minus steering wheel, the contraption required installation of a small turntable at Goose Creek, and is numbered 531," says Mr. Robinson.

"But in the first place, it won't go around the sharp curves of the line except at very slow speeds. Also, I am told it rides so hard that it shakes the daylights out of its passengers.

"The autorailer, recently described in your columns by Mr. Darragh, was different, as it was meant for highway as well as rail service. It has been taken out of service, I understand; the main trouble with that contraption was that it was so noisy when *highballing* at its 25 m.p.h. speed, that passengers did not want to ride it. Also it was out of service most of the time for shop repairs.

"If the new autobus behaves like the

autorailers, I believe that the HNS will decide to keep their reliable interurban cars, at least until they can dream up some other contraption like the rail buses."

* * *

DIRECTORY of railfans is being issued by Vane A. Jones, P.O. Box 220, Indianapolis, Ind., for the purpose of enabling fans to locate others with similar interests in nearby localities. Mr. Jones asks any interested in being listed without cost to send a postcard to him at the above address.

Boston Elevated Railway's Fiftieth Anniversary of subway service in the Hub City, was the occasion for publication of a very interesting illustrated 26-page booklet on the subject of their local railway routes, by the Boston Chapter of NRHS. Including excellent photographs, roster and map, copies of this publication may be obtained at 30 cents each from William V. Kenney, 90 Walworth St., Roslindale, 31, Mass.

* * *

WILKES BARRE Railways now operate only two routes, both largely on private right-of-way, reports Edward S. Miller, 155 Mill St., Pittston, Pa. With the abandonment of the Plymouth line on September 1, 1947, only the long Nanticoke run and the Hanover shuttle line now operate on rails.

Both of these routes were severely damaged by a heavy windstorm in the late summer. Washouts, landslides and fallen trees blocked service on both routes, on Nanticoke for one week and on the Hanover run for one month. However, rails are now back in shape and cars are running as usual.

* * *

CHANGES in rail lines occurred in Norfolk, Va., when the Virginia Transit Co., operators of the local streetcar lines, began their program of bus substitutions on all routes.

From L. D. Moore, Jr., Portsmouth, Va., and many other fans we learn of the abandonment of the Willoughby line and the Naval Base route, with other rail abandonments coming up in the near future. Only recently the local newspaper presented an interesting story of Norfolk's streetcar days, written by H. Reid, railfan and newspaper employe.

Other Norfolk news is to the effect that the former Norfolk Southern interurban line to Virginia Beach, now operated by streamlined railcars, may soon be supplanted by buses, says William Gwaleney, 2808 Kimball Ter., Norfolk 4, Va. The Virginia Beach route, known better as the Beach Division of the NS, was an electric interurban line until 1935, when several streamlined passenger motor cars were installed. But the company now complains that they are losing money on the route, and is applying for abandonment.

* * *

WORK train and crew spent one month repairing Wilkes Barre trackage washed out by September's heavy storms

Photo by E. S. Miller, 155 Mill St., Pittston, Pa.

"THE absurd excuses offered for the scrapping of the Hoosac Tunnel electrification are no surprise, since no legitimate excuses exist," writes E. J. Quinby, ERA president, "I refer to the arguments offered by S. Harrington, B&M fuel supervisor and Robert A. Codman in the March, 1947 issue. Insulation leakage due to moisture in the tunnel is a mighty lame excuse for scrapping the entire project, as the entire

TEXAS to Virginia to Green Pastures, Former Houston Car 801 on Norfolk's Ocean View line, which is due to follow earlier abandonments

Pennsylvania and New Haven electrifications, operating on high voltage alternating current along the seaboard where salt dampness and wet weather are encountered, will testify. Interference with adjacent telephone circuits is also a lame excuse, for a much greater density of telephone circuits is operated successfully adjacent to the Pennsylvania and New Haven electrifications. The necessity of stopping trains and thus losing valuable momentum in the process of transferring from Diesel-electric to trolley-electric power is non-existent—so that excuse is not valid either. Only a momentary shut-off of power would be necessary, with practically no sacrifice of speed or momentum, when the Diesel engines are shut down and the pantographs raised. Moreover, substituting low-voltage d.c. for high voltage a.c. on the trolley wire would have corrected whatever insulation troubles existed—although they could have been remedied with little difficulty even if high-voltage a.c. had been retained.

"While it is true that the huge exhaust fans, introduced to improve the passengers' comfort as the publicity announced, are also useful to clear the tunnel of fog, such use is purely non-essential, otherwise we would be forced to employ fog-dispellers or 'fog-plows' on many other and more important railroads. The true necessity of the exhaust fans is to clear the tunnel of Diesel-fumes which should not be generated in the tunnel in the first place, and would not be generated if trolley power were utilized to energize the traction motors of the Diesel-electric locomotives while passing through the tunnel.

"The truth is, that the tunnel has now reverted to the primitive conditions which existed with steam locomotive operation before the advent of the electrification, and that the daily train capacity of the tunnel is now limited by the time consumed in clearing the tunnel of fumes after the passing of each train. The truth is that the exhaust fans definitely do not add to the passengers' comfort; rather, they somewhat reduce the discomfort which would exist through accumulation of fumes from previous trains. The passengers must now endure the fumes of their own train while passing through the tunnel. By the railroad's own publicity statements, it takes twenty-five minutes to clear the tunnel of these fumes after the train has passed.

"Here, then, is another example where an existing hydro-electric powered railroad electrification has been deliberately sabotaged, and where petroleum consumption has been unnecessarily increased. Whereas our natural resources were for-

Photo by James Stubchaer, 1891½ Greenfield, Los Angeles, Calif.

PACIFIC ELECTRIC'S busy subway tunnel *above* may soon be made the backbone of a rapid transit system for the entire Los Angeles area. *Right*, Milwaukee Transport's 1190 passes the downtown interurban terminal. Purchase by bus interests in '40 doomed the line

merly ample to provide our own supply and to permit exports, we are now forced to import petroleum. As a result, we are becoming involved in international complications which could have been avoided if we had conserved our own petroleum for essentials, and if we had employed our hydro-electric resources where they would have better served the purpose.

"It is important to disclose this Hoosac Tunnel conversion in its true light, regardless of whose feelings get hurt. Otherwise we will witness other electrifications similarly sabotaged by either unscrupulous or well-meaning modernizers who will point to the Hoosac Tunnel change as a well-founded precedent. In the name of justice, let us avoid misnaming every change an improvement, and avoid confusing mere local economy with progress. If it is accomplished at the expense of the paying passengers' safety, comfort and convenience, it is poor economy indeed. It benefits a certain few but penalizes the important masses who pay for the best but are forced to accept an inferior substitute."

* * *

SERVICE on the Milwaukee-Racine-Kenosha interurban line ceased on September 13, 1947. It may be recalled that this line paralleled the more famous North Shore interurban route all of the way to Kenosha, being the last long-distance interurban competition in North America.

Bob Heglund, 1213 Grant St., Wau-

kesha, Wisc., who sends us this news, comments upon the fact that the Milwaukee interurban route took seventy minutes into Kenosha, while the North Shore trains make the same distance in only forty-four minutes.

Purchase of the Kenosha route by the KMCL, a bus outfit, about seven years ago, sealed its doom, and the line could expect no better fate than bus substitution.

Local streetcar service on the North Shore trolley routes south of Kenosha, at Waukegan, Ill., will come to an end by December 1, 1948, according to an agreement signed by city and rail line officials. As far as we know, this will not affect the interurban lines, but only the two local streetcar lines, one of which reached the famed Naval Station, at Great Lakes.

* * *

LEHIGH VALLEY Transit is planning on progressive abandonment of all its rail lines and substitution of buses by 1950, reports David W. Herb, 222 Bartlett Ave., Sharon Hill, Pa.

"Just what sort of progress is this?" asks Mr. Herb. "At the present time, the Liberty Bell interurban from Allentown to Philadelphia, making all local stops along the way, still takes the same time as the non-stop highway buses, and the LVT cars are far more comfortable than the highway buses. Just try to imagine buses offering you a private lavatory, parlor smoking lounge or other such conveniences.

"As for reliability, just look at the night of February 2nd last, when a heavy snowstorm blew up quickly. With only a few inches of snow on the ground, the bus lines of our local Philadelphia Suburban Traction Company were out of service or delayed, while trolley lines operated as usual—strictly on schedule. The same night, the buses of the Southern Penn. line, an ex-trolley route, were stranded out of gas at points along the way.

"The LVT seems to want to sacrifice speed and comfort for the sake of not having to maintain its own right-of-way. I wish you would ask those living in cities where changes have been made to buses, to write and tell the LVT what horrible results have come about wherever buses were substituted for the fast interurban cars."

BRILL-BUILT Car 2 owned by Hummelstown & Campbelltown, ready for a Hershey to Palmyra run back in 1909. The Hershey line quit last year

Still from RKO-Pathe Whistle in the Night

By ETHNE M. KENNEDY
Associate Editor
Railroad Magazine

Railroads In the Newsreel

From March of Time's New Trains for Old?

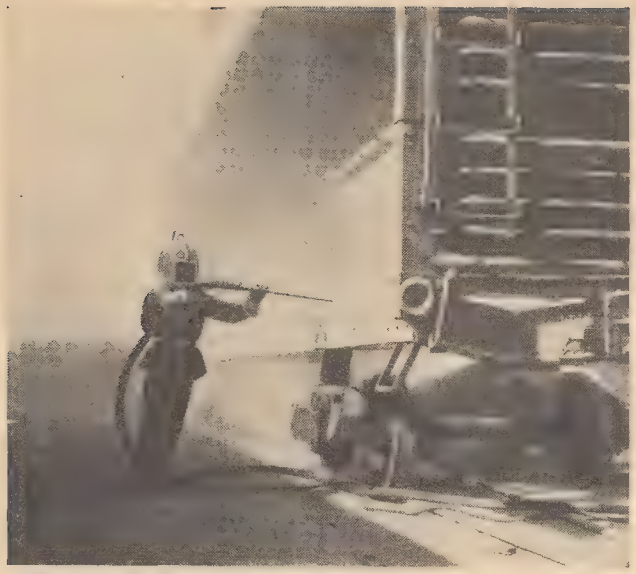
RAILROADS are everybody's problem. The fruit shipper wanting quick service for his perishables, the Jersey commuter who'd like a crack at air-conditioning his warped window, the coupon clipper and the company employe—each wonders how the switches up ahead are lined up for transportation by rail. They know that bigger, safer planes are skimming the cream off the nation's lush traffic, while the automotive industry is preparing blueprints for more and more buses and long-distance haulers to glut the highways. And still the question remains, what besides hiking their passenger and freight rates are the railroads doing to

hold a mainline track in transportation?

Although public relations' men have been attempting to assure the skeptical traveler and shipper that rail luxuries are on the way, the fact that the greater number of them have remained on designers' drawing boards has sabotaged their effect. Then last July railroads went Hollywood. Short of studying the 115-year history of rail progress and taking a quick ride on the Train of Tomorrow, few non-railroaders could be better briefed in the behind-the-scenes workings of America's fourth largest industry than by seeing the March of Time's *New Trains for Old* and the RKO-Pathe release, *Whistle in the Night*.

The films are similar in one respect only: the running time of each is approximately eighteen minutes. *New Trains for Old* is a graphic presentation of the battle for traffic, faced by our 130-odd Class 1 carriers. With no time-out to rebuild their battered big steel and outworn plants, with replacements of rolling stock far behind the retirement schedule of the oldtimers on their rosters, railroads are carrying a record load of peacetime tonnage, while up against the stiffest competition from air lanes and motorways. This is the century when railroads will prosper, be nationalized or disappear gradually. *New Trains for Old* are what the patrons are demanding, the owners providing, the stockholders worrying about.

Whistle in the Night is the railroad story, a century of growth determined by America's needs. Its scenes and sound track recreate the universal appeal of the iron horse: the brazen headlight across the sky, the wail of a whistle and thunder of wheels . . . the conquest of the unknown. And behind this, the round-the-clock precision of carrying the U.S. mails, building and maintaining timecards, loading freight, car checking—the work set in motion once a ticket's issued or a waybill signed. Commenting on the traffic crisis, "fast and efficient delivery of the mail would justify keeping the railroads running if they lost their passengers and freight to the air lines and trucks." Yet



Stills from RKO Pathe film
Whistle in the Night

WAR . . . . on home grounds. To keep 24,000 freight trains wheeling across America each day, company shops are reconditioning old equipment to serve until new cars roll off builders' assembly lines. *At left,* sandblasting rust off a well-worn boxcar. The charcoal filters of the diving helmet protect the worker's lungs from thick dust

FLAMING tire-expanders in a Pennsy shop *below* are part of the reconstruction program, worn tires being removed for turning or replacement

the roads have no intention of losing either passengers or carload lots.

Both films agree that railroad's Number One problem is how to speed up delivery of its billion-dollar equipment order. Meanwhile, the countrywise tour of the Train of Tomorrow continues, promising travelers a new era in speed and comfort.

Random Thoughts of a Line Op

By
CHARLES D. DULIN

A LOT of ops don't like the jobs out on the line. They try for the relay and terminal sets so they will be in "where things are going on." I've never been that way. To me "out on the line" is one of the most thrilling expressions in the world. Right off I hear my old semaphore arm complaining on her authoritative perch. The breeze blows her east and she grinds out the fourth note of *Deep in the Heart of Texas*. When she settles back it's the second note of *She'll Be Comin' 'Round the Mountain When She Comes*. I say that's first class music and I ought to know because I used to play second fiddle in Switchman Huddle's orchestra.

Out in these little villages there's plenty "going on" if you are of the proper turn of mind for the place. Did you ever stand out by the track when the limited was bearing down on you? Just close your eyes and listen. The accented chug is followed by three unaccented ones. Now, just dismiss the little ones and listen only to the big one. You can imagine it's a heavily loaded switcher barely making the grade. But when she passes, you know durned well the little unaccented notes are playing their tune in that seventy per. It's enough to make a poet out of a guy, that's what it is.

Then there's always the cross-roads old fellow who is practically retired and is more or less dressed up in a baggy, dull suit with a few neat patches. He's got a big

family all busy doing things and the old man just putters around. Maybe he relieves his son at the filling station for an hour. Possibly one of his daughters needs a baby-tender for a spell. It's a cinch the operator needs him at the depot. He sees to that!

At every village where I worked on the line this old fellow showed up sooner or later. Sometimes he has been a farmer, sometimes a cattleman, or a publisher of weekly papers. One of these old codgers was an ex-mathematics teacher and he handed me one that kept me giggling the rest of the night. We were discussing different angles in the railroad game and I got smart with him. I says: "You're a mathematician . . . how many angles are formed where two rail lines cross?" His pale blue eyes studied me over his small, old-fashioned specs. "There'd be sixteen angles, all right, if the rails so crossed. Otherwise there'd be eight acute and eight obtuse and if you know anything about geometry you're smarter than you look." The insult was so pointed it still remains tops as a puncturer of any vanity I might have about my facial expression.

I recall just one village where the section foreman didn't have a daughter. The usual thing was six or seven, and all with a yen to model lipstick. They strutted out of the foreman's red living quarters with lips and cheeks to match the background. They used to come over to the depot quite often and I sure hated to see them coming, especially when I had a two- or three-hour break on trains. About every time I had a good chance to read Shakespeare in would come the section foreman's daughter and my education suffered in proportion to the time she stayed.

They don't have the odors in the terminal offices we've got out on the line. We smell depots out here . . . depots with paper presses, depots with creosote so strong it climbs in the bay window and smacks you in the face, depots with the old pot-bellied waiting silently to be gouged into a rage, depots with the wall clock cracking and sounders lambasting echoes into the emptiness of the waiting room, depots with semaphores and levers, with history and romance, with dreams and tradition.

Sometimes we're lonely but that very loneliness is welcomed if you're cut out for a line op. The op here is the boss. Think of it! Nobody—no farmer, cattleman or businessman in or near the village can run your job. You're the manager. You take orders from no one but the detainer, the chief, the division op, the trainmaster, the superintendent, a few vice-presidents, the president and agent. It's a carefree life, that's what it is.

Trains usually come by me like trains ought to. They don't run a few rods, stop, blow off steam and sputter. After watching them by I've got plenty of time to run after my hat a half mile down the track and restore my signal and my hair back to normal position. When I hand up an order the procedure differs from that at a terminal office. The trainmen don't stop to hold hands and talk about the weather. They get their business over with at a good rate of speed and get to hell out of my way. That gives me more time to brood with the rest of the surroundings. You've got to be a good brooder to be a good line op. You don't need to pout exactly . . . just brood. It's the kind of mellow brooding like an old fellow does when he's whittling.

SURPRISE! And happy birthday to you! That train out there in front—how'd he get there, what does he want and where does he think he's going? Hell's fire! That's Number 3. Slipped in on me. Not used to him showing up. Since I've been here he's passed at exactly this hour only a few thousand times, so I couldn't be expected to watch for him. Clearance card will pacify the crew . . . maybe. OS will cheer the DS . . . maybe. What's ten minutes, anyway? Dante's *Inferno* wasn't written in ten minutes. Though Number 3's conductor can recite an inferno while I'm making out a clearance. . . .

Here comes a bum of the old school.

Terminals don't have bums, nor deserve them, either! They don't treat them right. Too many bulls. Good old bum. Wonder where he's from. Maybe he'll tell me after he snoozes on my army cot. Bound to be the truth. Never proved a lie on a bum yet. Didn't figure it was worth the effort.

Nineteen, copy four, eh? That wind! Carbon all over me. Carbons everywhere but in the flimsy pad. I'll be ready in an hour and a half. C&E extra 4004 west. Yeah, I know! Address it to the C&E and deliver it to the F&B. They've been doing that for years. Sometime I'd like to hop a train and see if the fireman and brakeman put up a scrap to retain what I give them.

I like stations where the tracks run for miles each way in a bee line. Maybe I've got Indian eyes but I believe I can see where the rails come together at the angle of the illusionary V. That reminds me of a story I heard about an old op by the name of Peters. Peters reported to the DS that there appeared to be an obstruction on the track about two miles to the west. The DS told him to investigate and when Peters came back he said the joke was on him. Said it was just a beetle taking a sun bath. I don't think a guy with vision that defective should be a line op.

There's always good company when a freight is waiting on my siding. The brakeman knows a lot of stuff that's none of his business but, since it's some of mine, he spills it. I feed him sage philosophies and try to pound into his thick skull the idea that operators are the brains of the railroad. Haven't met a shack yet who agrees with me. Stubborn diehards, those boys.

To the villagers the line op, especially if new, is a big-shot. The sounder rattles while a villager is talking to you and you stop him long enough to say, "That's O'Dell at Riverview. He told Andrews at Amber that he'd be down there Sunday on Number 17 to go fishing." All your visitor heard was a rattle. People will even tell you point blank that they just know they could never learn the stuff.

Once I copied a "copy-all" message the gist of which was that Washburn depot had been robbed by two men who were heading my way in a Saxon automobile. Guess the old Saxons aren't made anymore. Haven't seen one for years. Didn't see that one either. Guess it went by while I was trying to figure out what a semaphore really looks like. Course I notified what authorities I could before hand but I always have contended that Washburn station is too close to mine. It's only seven miles and when Washburn calls me on the wire the sounder is so loud it hurts my ear drums. They ought to space these towns out a little.

Some of us go in stronger than the average for desolation. Generally speaking, the line op has some social contacts, as above mentioned. The real hermit type, however, glories in the shack that is practically unknown excepting to other ops, passing trainmen and the detainers. Many of them are even more desolate than Bedwell's Gravity which boasted a water tank, a few living quarters and a nearby highway. I had such a set on the Santa Fe. To make the loneliness complete the place handled freights only, was non-agency and I was the one and only op. I opened the shack at 8 p.m. and closed her at 5 a.m. Three orders a week was rushing, and on extra heavy nights three trains passed.

It was on the Santa Fe set that I located the obstacle that beat me out of a stretch in the White House—that terrific hurdle known as precedent. No Morse man has as yet become president of the United States and I believe he'd be very unhappy if he did. He'd probably spend most of his time with the government ops talking about that time when he was "slinging lightning on the Espee and old man Davis came through on Extra 4076 west and the work extra was two miles out and Number 3 was . . . and Number 4 was . . . and I was . . ." and all this time diplomats would be wondering where the president was.

IT'S a life that gets into your blood. A while back, with a Josserand article, *Railroad Magazine* carried a picture of a woman op at work. There was the old

P.A. can on the sounder. I wonder if the war department checked the railroads before they tied tobacco tins during the late fracas. The wartime containers were a washout for ops. On my old can I vary sonority and pitch by packing in more or less cotton. I usually operate her in C sharp minor but by adding a little wadding I can throw her into B flat slick as a whistle. I never liked the full resonance of the empty can. Too many echoes when it reached a similar head.

I knew an old op away back yonder who worked the graveyard at a place where I was on second for about three months. He handled his inbound and outbound Morse like the veteran he was and I envied him his ease. One night I hung around with him quite awhile. He was receiving a slug, yanking message after message from the mill, juggling carbons and copying so far behind he gave me the jitters. Then something went haywire. He started breaking. The Morse was clean and clear as a bell. I had no trouble getting it and, at that time, anything I could copy would be duck soup for a walrus. But the old man was evidently downright sunk. Thinking he'd passed out I stepped over and looked at his face.

I'll never forget the expression of utter helplessness he turned to me. The sender was rattling on thirty or forty words ahead and the old fellow wasn't making a move. Then he opened the key, got up and went moseying around the office. Suddenly he glanced accusingly at me, picked up his hat from the floor, brushed it carefully and hung it on a nail beside his coat. This done he returned to his work with a "GA disposition" and that ended the deadlock. I learned later this old op had to have everything in its accustomed place in the office before he was at himself.

I had accidentally knocked his hat down and a sixth sense telegraphed to him that something was wrong. I guess some people have a sixth sense. I believe I wore mine out. I know there were times when the other five were practically shot.

It's kind of scarey out on the line when there's a big storm on. I remember one in particular when I was on a "hermit" set. I was watching from the bay window as lightning flashed, lighting up the prairie for miles. The wind was up and seemed to be swooping in on my shack from all directions. Suddenly, a big streak about six inches wide stood outside the window for perhaps eighty-nine minutes or so. It just stood there trembling. When she left there my old lamp and lanterns were as pale as ghosts. Talk about a Lightning Slinger! If the Old Man can take it like He dishes it out we ought to elect Him to the fraternity. I suppose the streak was a mile or so away but if it had been any closer there'd probably have been a job up for bids in the cow country.

"Out on the line!" Yes, sir, that's a thrill. You're out there on the cinders watching a long-tail extra pound by. You know that away up the line the hogger is beating her over the head. The way car is away back there running like hell to keep up, and in between are tractors, groceries, pipe, wire and a lone op with an old yellow lantern. I get to thinking sometimes and it kind of gives me a swellhead. You know, I could stop one of them babies. The hogger wouldn't dare run my red board. Not a thing could the DS do till it was all over. What a thought! . . . There'd be the engine up ahead fretting and fuming and away back there the way car lights would blink and here I'd stand as competent and cool as a cucumber. Yes, sir, I could have one of them long extras laying out here dead as a mackerel . . . the big ox so sore he sputters . . . just grin at him . . . hold my lantern up to his face and grin . . . smirk a little, too . . . he'll go over my head over my dead body . . . tromp my own 'phone pedal . . . he couldn't tell a P from an E on the wire. . . . Now who's running the railroad?

I did stop several trains here and there. The DS called me some of the darnedest names. The chief was good, too. Explain! Them birds wanted me to explain. Explain what? What good is an op who gives them *all* a clear board? Might as well clear it and go home. I had reasons for stopping them. Up all day, dancing till mid-

night, working till 8 a.m. Rattlers passing give me a headache, especially when I'm sleepy. Never could sleep with a headache. What about that rule, "when in doubt . . . ?" When in doubt clear your board, I suppose. Not me! When I doubt if I can stay awake, I leave her red.

SOME of these old ops are so full of dry humor they crackle. One afternoon I arrived at a little non-agency in the west to work second. Well, the first trick op seemed a reserved old codger, not very talkative. I was pretty young and had a case of nose trouble. When I opened the cabinet to put my sport hat inside, there stood a quart bottle half full of *Old Mule*. "Aren't you afraid old rule G might come meandering along?" I asked.

"Never touch the stuff," was his reply. "Just keep it handy in case of snakebite. Feller never knows when a sidewinder's gonna take a pop at him."

"Ever been bit by one?" I asked, thrilled to think I was building up my case like a veteran prosecutor.

"Not yit, I ain't."

"But the bottle is half empty," I says.

"Nope, sonny, it's half full. You see, I bought jist part of a bottle 'cause jist part of a snake is all that bites you."

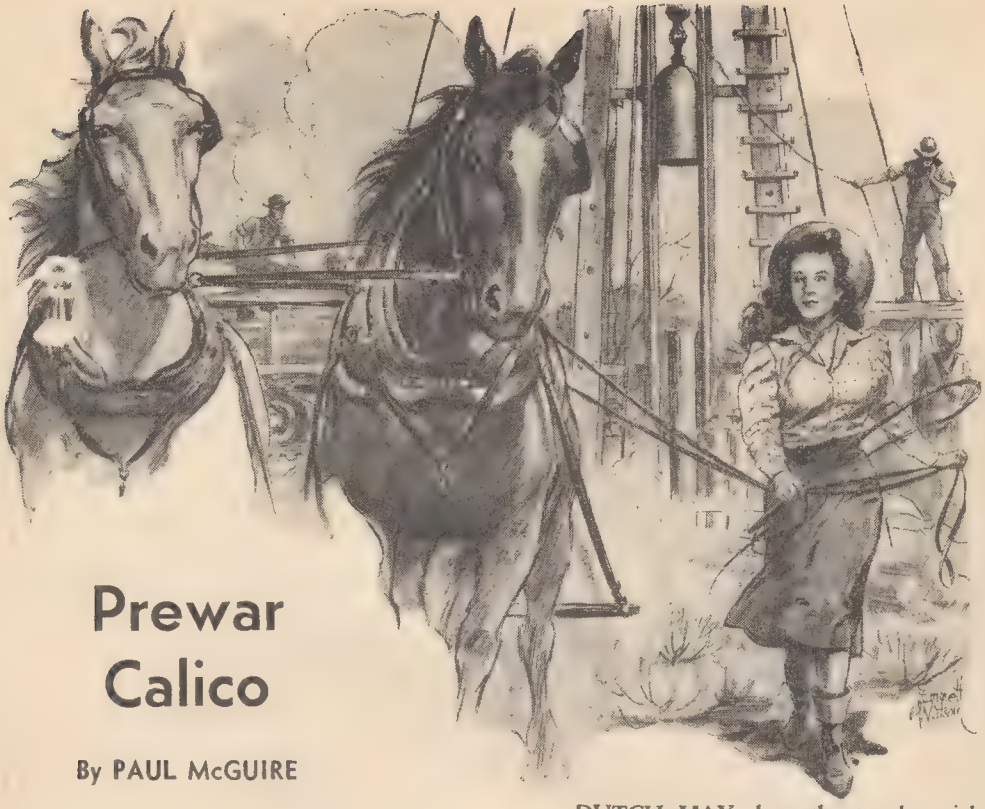
I let it drop there but every time I glanced at that old bat he was grinning.

The most outstanding display of determination I ever saw was on a way car going from Green River to my set at Granger. An old stockman, his face about two-thirds covered with blood, was trying to shave with a large, straight-edge razor. He wasn't half done but he kept doggedly at it. We were moving along about at ten per when the old crummy banged almost to a halt, then seemed to lunge in all directions. The old stockmen went into the Razor Dance, if I ever saw it. Slashing the razor wildly he spun around and flattened against the front end of the car. Then he did a waltz toward the rear end, cut a semi-circle, without too much grace, around the stove, and came to a frozen halt with his high-heeled cowboy boots laid over till the heels looked up at him. Then he reeled dizzily, made a slash as if trying to sever my juggler vein and started a Russian Stomp. This ended when he banged into a front corner and slid to the floor. When the way car was again placid he got up, returned to the mirror and continued the butchery. Not once did he indicate by word or expression that this shave was any different from any other.

All the time his sixteen-year-old grandson, worn and sleepy, sat on the edge of a bunk taking in the act with little interest. He didn't crack a smile or register the slightest concern. Rather, he took in the dance like a lazy cat follows the movement of an object he has no intention of nabbing.

Funny thoughts a lone op has sometimes when business is slow. The other night a couple of hams were talking on the wire and something was said about Indians. I got to thinking till I could see Indians out the bay window circling a covered wagon, yelling and carrying on. Then, suddenly and without warning, one Indian whirled his pony around and started circling in the opposite direction against traffic. He and his nag spilled three other Indians and their ponies and the pile grew until the last Indian landed in the muddle. Before I could untangle them and get things moving again Number 9 whistled for the board.

Maybe I've been out on the line too long. Maybe I ought to go to the beach and sprawl under a parasol. Seems like when ever I get ready to think a train always whistles. Then I've got to deliver orders to her or let her go or something . . . I guess it's "on the line" for me . . . out where you light your old brass lamp at sundown or blow her out when the sun clears the horizon. Where the old clanking, squeaking semaphore complains as she lords it over far-flung stretches of high iron. Where you gouge the stove in winter and fill your lungs with scented air in summer while the sounder accompanies the yells and hoof-poundings of Indians dreamed up out of nothing. . . . Circle to the left, you old buzzard, or I'll lam this red lantern clear through you.



Prewar Calico

By PAUL McGUIRE

DUTCH MAY drew the toughest job: teamster on the pile driver

WHEN Osage County, Oklahoma chooses her pioneer mother, the woman to be honored above all others—the woman to typify the unbreakable spirit and indomitable will to succeed in a new country—will be May Labank of Fairfax. Born in Trenton, New Jersey shortly after the close of the Civil War, this buxom daughter of a Jersey Central locomotive engineer honeymooned and homesteaded in Nebraska, where she was left a widow with several small children.

Droughts, grasshoppers and crop failures soon proved that that part of Nebraska was rightly included in the "great American desert." The young mother was forced to seek other means of livelihood, although she could have successfully managed her homestead under any other conditions. Besides farm labor, there was only one other thing that she could do well: cook for railroaders.

New rail lines were branching out all over the West, and this pioneer woman had no difficulty in finding plenty of that kind of work. The railroad camp cooking was plain: just beans, potatoes, bread and meat; but the Terriers had voracious appetites. The work was heavy, the hours long and the pay just half what the men earned. "Dutch" May was sometimes the only woman in the large and boisterous tracklaying outfits. Yet the oldtimers prized a woman cook; she was alway treated with something more than due respect.

May has never been sure of her descent. She speaks with a typical Dutch accent, or maybe it's Swedish. I thought I was an authority on ethnology, until May confused me somewhat by stating that she was probably of Indian ancestry. However, she knew of no reason for her belief nor do I.

But as time went on, it didn't make

sense to May to work for low wages. Finally in 1887, she persuaded the contractor on the Chicago, Kansas & Western (now Santa Fe) at Augusta, Kan. to give her a job as a teamster. As might be expected, she was handed the toughest job on the line—driving the snatch team for the pile driver. Fortunately, May was quick and strong. She not only had to move at a fast gait when pulling the drop hammer to the top of the derrick, but had to drag the heavy rope around for the next pull, once the iron slug was cut loose to strike the piling.

After that apprenticeship, May was accepted as a top team hand and built grade on the many lines projected through that section and southward. In 1898 she drove the steel into Amarillo, Tex. for the Ft. Worth & Denver City, now the Burlington; in 1899, into Tonkawa, Okla. on the Blackwell & Southern, now Santa Fe. During that same year, the Kansas, Oklahoma, Central & Southwestern reached Bartlesville, and the Hutchinson & Southern, both part of Santa Fe system, reached Ponca City, Okla. Dutch May hauled freight the seventy-five miles across the Osage County hills between the two.

In 1902, May built about twenty miles of grade for the Eastern Oklahoma from Pawnee to Ralston, and once again the iron horse stopped at the Osage County line, which was an Indian Reservation. May stopped railroading to open a new freight line from Ralston to the big Indian Trading Post of Grayhorse.

A CONNECTION came across the country from the north in 1903 missing Grayhorse by about five miles and establishing a new townsite at Fairfax. This capable woman eagerly began the job of moving houses and store buildings to the new center.

Good-natured and full of wit, May loved to reminisce of those old times, when she sat back at about seventy-eight, still in full possession of all her faculties. "Ven dem old folkses try to tell me something aboot Fairfax," she told me, "aye yust say, 'Py Golly, vy tell me, ven Aye built der place and mit der railroad too?"

It is still told in Fairfax that she can do the work of six men, and I believe that she inadvertently told me how that story first started. It seems that the contractor who built the bridge over the Arkansas River at Ralston was using six teams to drag the long piling across the sandy approaches to the header banks. When May told him she could do it with one team, he offered her ten dollars to prove it.

Partly burying a rear wagon wheel, she snaked the butt end of the pile onto the bolster. Then May dug out and pried up the wheel and, using the coupling pole for a tongue, pulled the heavy pile to its place. This is the later-day technique used all over the oil fields to load boilers on wagons. "Dat mon cooldn't see dat der furder he dragged der heavy timber, der deeper it vent in der sand," she explained.

When the house-moving job was done, other railroads had finished the freighting business. So in 1905-6, May hauled ties for the Kansas City, Mexico & Orient from Fairview toward Clinton, Okla. After that she returned to Fairfax, bough a home and settled down to be with her family, three of whom still reside in this county.

"Aye mighty soon found out that Aye better get out in the country to make some money," she seriously told me.

For more than forty years, Dutch May made more than a living by farming and raising cattle in the Osage, retiring to her home in town only a couple of years ago. By herself, May broke out a lot of virgin sod, sometimes farming more than a section; but she never broke out any that wasn't rich for years to come.

Once she lost four hundred dollars in currency. "Py Golly, Aye always ban pretty lucky," she said. "Aye yust pay a man vat I owe him, tree hunnert dollars."

Alert and plenty wise, Dutch May's parting words were: "Always be pretty careful on der railroad for it ban dangerous wurk. Dig yer potatoes early in June and be sure and dry yer onions before you store dem."

Offhand, I can't think of better advice.

New England's Once Lucrative Logging Industry
"Ain't What It Used to Be." Neither Is Its

East Branch & Lincoln

TALK about lumber railroads today conjures up mental pictures of Mallets threading log flats between giant redwoods in the Pacific Northwest, or of Shays chuttering along Virginia's "trail of the Lonesome Pine." Back when the Nineties were gay, however, the heavily-forested hills of northern New England were the scene of extensive timber operations. Perusal of United States Government Geological Survey maps of Maine, New Hampshire and Vermont drawn two generations ago discloses a rash of crooked little lines marked "Lumber R. R.," sprawling alongside secluded mountain streams in these states. But present-day investigation of such locales will almost always reveal little more than a few rotting ties and traces of former roadbed if even that can be found.

Fortunately, there is one exception to this regrettable history of picturesque pikes relegated to the scrap pile. It is found amid the scenic splendor of New Hampshire's White Mountains. The locality is the mill town of Lincoln, complete with company store and boarding house Here, close to the fork of the Pemigewasset River, a battered Lima Shay and two stubby saddletankers jostle link-and-pin log cars over the fifty-four-pound iron.

Lincoln is only a mile from one of the main arteries of tourist travel to the famed White Mountain vacation spots, U S. Route 3 through Franconia Notch; yet few people ever see this lumber railroad The mill town has no through highway and its railway darts up the wild valley of the East Branch, Pemigewasset River where it becomes lost among 4000-foot mountain peaks. Not surprisingly, the line bears the name East Branch & Lincoln.

In 1893—the year the Central's famed *999* made her record-breaking run—the first two miles of EB&L rails were spiked down to service the timberlands of the J. Henry & Sons Lumber Company, whose hungry new mills had created the village of Lincoln. Twelve months later a rail connection with the outside world was completed, when the Pemigewasset Valley

By PHILIP R. HASTINGS

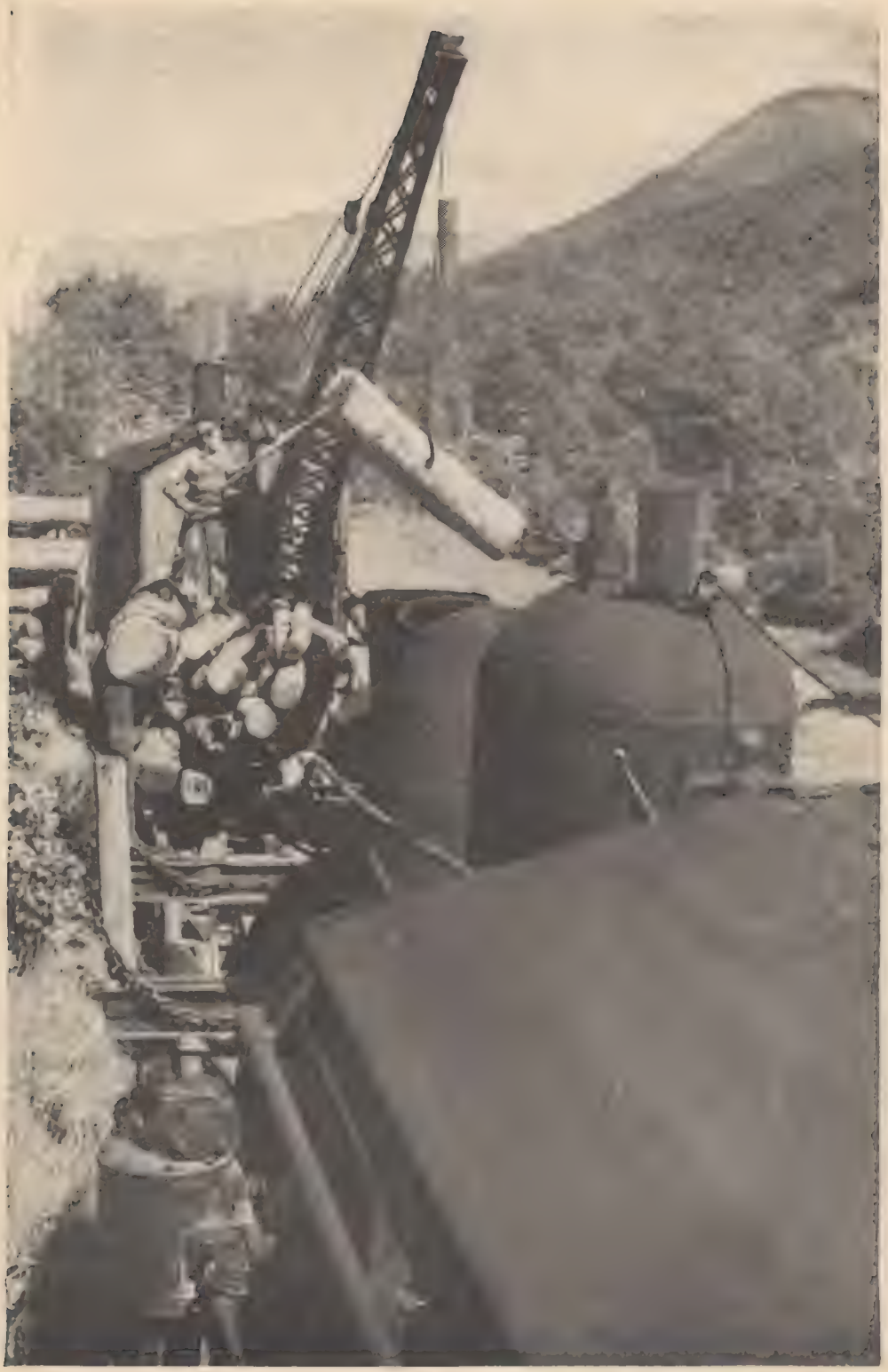
Photos by the Author

extended its line into Lincoln from North Woodstock. Twenty-two miles southward, the PV would deliver the East Branch lumber cars to high-stacked, high-drivered tenwheelers, owned of the opulent Concord & Montreal Railroad at Plymouth, New Hampshire. It meant a clear track through to long-distance traffic.

To advance in step with the increasing business, the Henry Company purchased a slick little fifty-ton saddletank from Baldwin in 1895, which may still be seen today under a shed at Lincoln, waiting to be scrapped. During the same year both the Pemigewasset Valley and the Concord & Montreal were leased by the Boston & Maine system, which operates them at the present time.

By the time the storm clouds of World War I were gathering, the Henry Company had pushed over thirty miles of track up three valleys radiating out from Lincoln. The main drag stretched for sixteen miles up the glacier-carved, rocky banks

TOTING HER SHARE: EB&L Baldwin-built Number 5 backs into Lincoln's mill yards with "big sticks" for the paper factories. Since local forests have been greatly depleted over 1,000 carloads are hauled in annually via B&M way freights



of the Pemigewasset's East Branch, as far as Camp 19. The Franconia branch extended five miles along the creek of the same name. The Hancock line totaled eight miles, leaving the East Branch valley to skirt the base of Hancock Mountain, northeast of Lincoln. Another short two-mile section headed up toward the gaping cleft of Franconia Notch, ending at Camp 20.

East Branch & Lincoln mileage was at its peak in 1917, when the Henry Company sold out to the Parker-Young Company, a well-known name in New England lumbering. Since those days, trackage has been reduced gradually, as the forests were cleared out. Now only about twelve miles of the original main stem remain, the rail route leading to Camp 24.

THE East Branch & Lincoln has come upon hard times. Shay Number 5 rarely ventures up the crumbling roadbed into the woods, since motor trucks are being groomed to take over the job of hauling down the "big sticks." A clattering Model A Ford railcar, a converted station

ONCE DAILY the pike's Model A Ford grinds over the sagging, weed-grown trackage to Camp 16, scene of cutting operations. Maximum speed is a safe eighteen miles an hour

DILAPIDATED steam crane *left* digs into a railside pileup of logs on the bank of the Pemigewasset River's East Branch

READY FOR MARKET. B&M way freight *below* latches on to a string of Marcalus Company paper products in Lincoln's (N.H.) interchange yard

wagon, still pushes its way through the engulfing weeds and brush, and over rotting ties, to Camp 16 each day to carry a supervisor to the scene of cutting operations. Thus far, no motor roads penetrate to the far reaches of EB&L territory, so in season this railcar often carries hunters and fishermen to the isolated mountain fastnesses. Soon, however, the sportsmen will have to hike up an abandoned right-of-way to reach their favorite spots. For six additional miles of battered EB&L rail will probably be torn up within the year, bringing this terminus of trackage down to Camp 16.

The closer you come to Lincoln's busy mills, however, the more optimistic the railfan can become. Up beyond the smoking chimneys and whining saws—where the outskirts of the village lapse into second-growth vegetation—the ubiquitous Shay busies herself among huge piles of timber. With the aid of an incredibly decrepit homemade crane, logs are loaded onto cars and hauled down to the mills; then the stockpile is supplemented with more logs brought down from farther up the main where they had been piled during the past winter's hauling out of the woods. Handling of the log cars is one phase of EB&L railroading which has changed little since derby-hatted brakemen displaying the latest in handle-bar foliage first rode the line; shacks still lift the pins and hold links to make couplings, and run alongside the cars turning ratchets with a wrench to set brakes.

The log cars themselves are interesting since they are comprised of two sets of trucks which may be separated at various distances with wooden spacer bars to accommodate logs of differing lengths. Down around the sprawling maze of mill buildings, two locomotives dart around the network of tracks, spottings cars: a low-slung Baldwin 2-4-2T saddletanker and a stubby Porter 0-4-0T, which also carries her water on her back. There are swaybacked sawdust cars and gawky cinder cars to dump, hoppers full of coal to spot at boiler rooms and boxcars loaded with wood products to haul away to the Boston & Maine interchange yard. Production of the Marcalus Company, which bought out the Parker-Young interests last year, furnishes some one hundred fifteen carloads

MATCHING smoke signals with an idling Boston & Maine K-8, Baldwin Number 5 hustles across the Lincoln yard, head-ended by a utility car. Flatcar holds rerailing tools; boasts of running boards for convenience of the switching crews

STORAGE PILES of "big sticks" line the East Branch & Lincoln trackage about half a mile from the paper-making plants in the hollow of New Hampshire's White Mountains. Until motor trucks began operation, the road's Shay handled all along-the-line shunting

of paper and forty of lumber per month as outbound traffic on the Boston & Maine.

B&M's daily-except-Sunday way freight from Concord, New Hampshire, brings into Lincoln about twice as many cars as it takes away loaded; four to five thousand loads of supplies are required annually to carry on the paper manufacturing processes. The outstanding item is pulpwood from Canada and other points in New England, while coal to feed road and mill fireboxes comes next, amounting to twenty cars a week. During the winter an unusual consignment is the twelve to fourteen carloads of hay received each month to feed the horses used in the woods.

The B&M maintains a station and agent, a water tank and a wye at the terminus of the old Pemigewasset Valley in Lincoln; but the EB&L furnishes the interchange yard and, because its track is too light for the B&M K-8 Consolidations, it also takes care of all switching. From this it appears that the East Branch & Lincoln will survive for some years yet as an industrial pike, if not as strictly a lumber road. Whether or not the present locomotive equipment will also be preserved is another question.

The EB&L boasts of six engines fascinating to the railroadian but, unfortunately, they are nearing the end of their useful lives. The Number 5, a Shay outshopped by Lima in 1919, is the backbone of the roster, used both in the woods and

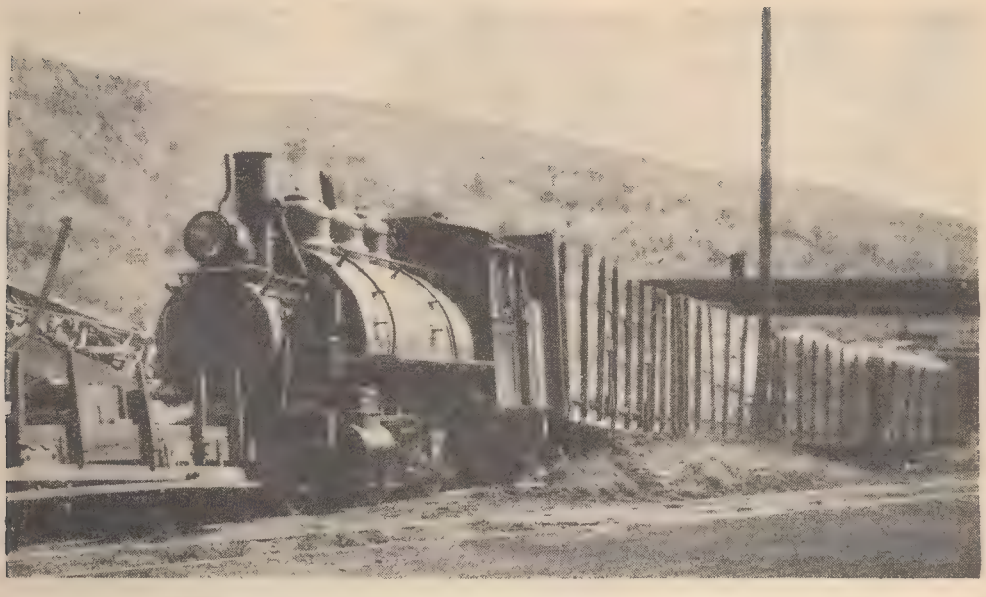
OPERATING OLDTIMER. Fifty-ton 2-4-2T outshopped in 1906 by Baldwin's Burnham-Williams plant at Philadelphia, Number 5 carries the EB&L record for years of service. Her regular hogger is Lewis Boyle, who's been with the pike even longer than the engine

down around the mills as needed. This geared job was purchased new by the Parker-Young Company for its Beebe River Lumber Railroad, seventeen miles from Lincoln; it came to the EB&L in 1925 when the other road was abandoned.

A second Shay slumps forlornly in the long, low brick engine shed at Lincoln. The Number 1 on her rusty boiler front bears no significance to her EB&L career. Built two years before Number 5, she is too worn out for road service and kept only to furnish spare parts for the repair of the other Lima hog.

The oldest active power on the East Branch is another 5-Spot, a 2-4-2T saddletanker outshopped in 1906. This short-legged Baldwin came to the road brand new and has always been kept in excellent shape. Beneath a shed in back of the mills the matriarch of EB&L power sits rusting out her soul. Bearing a "Burnham-Williams 1895" builder's plate and numbered 4, she is the duplicate of the Baldwin saddletanker; partially dismantled she is

FUEL SHARING. Three-quarter view of Number 5—the EB&L Shay, this is—spotted so that her fireman with an extra-long stretch can coal up the nearby steam crane. This standby in switching and mainline power is equipped with three 12x14 inch cylinders, a hinged spark arrester for dry season running and couplers which double for automatic or link-and-pin operation



SADDLETANKER steps out of a Lincoln, N. H., mill track with a drag of homemade sawdust cars. There's lots of shunting needed in a state which annually produces about 400,000,000 board feet of lumber, in addition to the tonnage of paper products

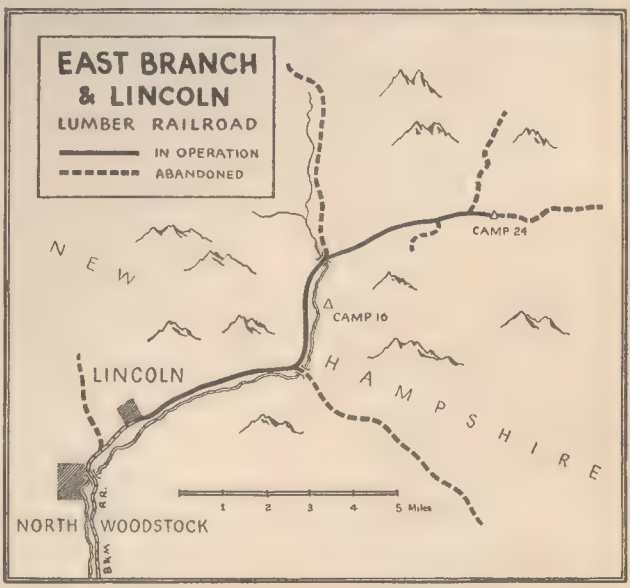
now only a scrap heap for spare parts.

Slumbering among the bushes in a board shack which was thrown up around her is another interesting item from the old-time roster. A crawl underneath the sagging walls reveals, in cobweb gloom, the slender outlines of a Climax locomotive. Since this engine was built in 1921, she is actually the most modern piece of EB&L equipment. Although she has not been in use for years, if needed, she could still be put under steam.

The latest acquisition is a top-heavy 0-4-0T Porter saddletanker which came up to Lincoln from the Watertown, Mass. Arsenal in 1945. Dating from 1917, this fifty-ton job is pretty worn out but sees frequent service as a spare engine in the mill yards, helping the Baldwin 5-Spot. EB&L railroaders anticipated many derailments as she has no lead trucks. But thanks to careful running, Number 3 has rarely been off the rails.

Such is the East Branch & Lincoln, last of the White Mountain lumber roads.

While a major part of its mileage has been abandoned, the EB&L is still bravely wafting its nostalgic smoke-trail along the banks of the Pemigewasset.



Courtesy of New York Central

DOUBLE DINERS

on the New York Central

THEY SAY the New York Central's in the hole, financially that is. Robert Young has been telling the ICC what he and his C&O can and will do, once he's recognized as a New York Central director. Well, on September 8th, Gustav Metzman and his Central staff made it apparent that they hadn't exactly been sitting around waiting for C&O admen to drop them a hint. Rolling out two of their latest Budd Company deliveries—ordered way back in 1944—on to Track 31 in Grand Central Station, they demonstrated how a meal aboard the *Pacemaker* and all new Central trains now being built will be added pleasure to rail travelers.

Part of a $60-million program to modernize its passenger fleet, the new two-car units include a streamlined kitchen-lounge and a full-length diner, which accommodates sixty-four at one sitting. Entering the forward end, passengers can relax before mealtime in one of the seventeen deep-cushioned chairs or four built-in seats. A passageway leads to the diner beyond, sidestepping an all stainless-steel kitchen.

Not many of the reporters present passed up a chance to see the chefs in action that day, however. It was hot inside, after the air-cooled sections adjacent; still the men were good-naturedly holding spoons and forks at artistic angles while cameramen shot portraits. A mo-

ment later, though, the place was once again a smooth-running assembly line. There was a luncheon to be served within an hour.

The new 41-foot kitchen and pantry outstretches standard models by fifteen feet. Designed for utility as well as spaciousness, it contains deep stainless-steel wells for storing frozen foods and perishables, a section for ice-making—640 cubes at a time—racks for china and cutlery, beside plenty of footage for the crew to shift about from the steam tables to the ranges. Increasing its efficiency is the use of presto-logs, a composite of compressed sawdust. Used two at a time, these provide a smokeless and almost ashless fire for the big stove, giving off great heat for about two hours.

An electric eye gives easy entrance through an outsized door into the diner, where comfort is the keynote. Divided into three sections by partitions of tempered glass, the car seats sixty-four, twenty persons more than usual. NYC innovations are the tables-for-two facing the aisle in the center diner and the lounge waiting-room at the rear of the coach. But all the usual streamlined attractions are there: upholstered chairs and restful combinations of color, air-conditioning, fluorescent ceiling lights, wide windows shaded by venetian blinds and vibration-resistant tables, although we sped around no right-of-way curves along the Hudson to test the effectiveness of the latter.

Should the scenery prove uninspiring or the conversation dull, the front and rear bulkheads frame color prints which are varied to blend with the terrain. But, as is likely when in the diner, you'll think of just one thing, food. Nobody heard any complaints about the food or the service-with-a-grin of September 8th.

Proud of its posh $200,000 passenger equipment, Central officials were also anxious to display a New York Central *first*, which coupled into the streamlined unit with an easy whack during the luncheon. It's an all-dormitory car for the dining-car crew. Totaling a sleeping capacity of nineteen, the coach contains private compartments for two stewards and triple-decker berths for the rest of the staff. This car had been in use for some time, while the two-car units on exhibition were scheduled for service the following week.

To date, the New York Central has received only 233 streamlined stainless-steel coaches, less than half its original order for equipping fifty-two crack trains. The rest are on the way, once material shortages have been licked. From the end-to-end view of the Budd units, satisfaction of passengers and crews will remain a permanent feature of the Central's long-distance flyers. —E. K.

DINING *DE LUXE*. Revamping its equipment roster to meet postwar competition, New York Central introduced a new $200,000 two-car kitchen-dining combine last September, which accents good food and dining comfort. *At right*, tri-partitioned, full length diner with capacity seating of sixty-four. *Opposite*, the 41-foot stainless steel galley and service table, coupled to the diner. At the far end of kitchen car is tavern lounge

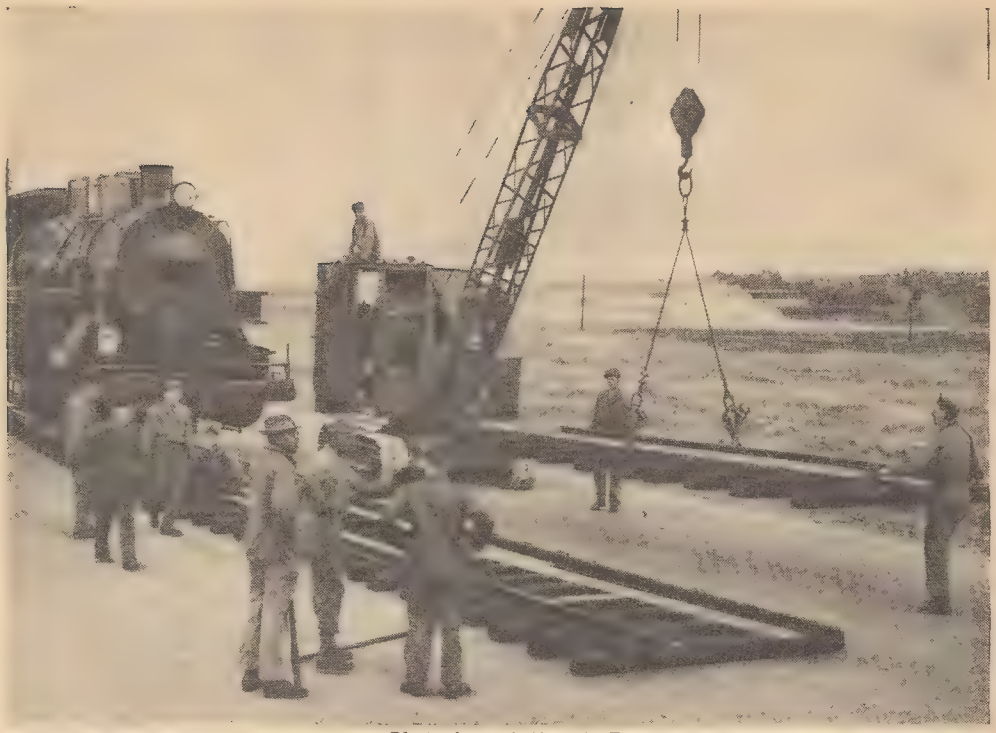


Photo from Arthur C. Egan, 2110 Evans Ave., Cheyenne, Wyo.

TRACK SECTIONS lifted by crane and placed in front of the engine as needed, served as a 1½-mile right-of-way when military personnel moved the locomotive above at Fort F. E. Warren, Wyo. Power to the engine was supplied by air compressors

On the Spot

DIESEL DYSPEPSIA. "I have been a reader of your magazine for a good many years," writes W. J. Barnes, 109 N. Second Ave., Mechanicville, N. Y. "I have chuckled over its railroad slang, enjoyed its fiction and read with avidity the Light Of The Lantern and On The Spot departments. The historical articles have taken me back to my boyhood when all my spare time was spent in the railroad yards getting acquainted with the engineers of incoming freights so as to get a chance to ride the engines while they did their switching. My ambition at that time was to become a locomotive engineer but witnessing the horrifying death of one of the fraternity changed my line of thought and lead me into broader fields. Nevertheless for something over fifty-five years, since leaving school, I have been more or less intimately connected with the installation and operation of power plants—steam, steam-electric, hydraulic and hydro-electric; in the steam line from a small locomotive type boiler with an engine mounted on top to the modern three-story-high, high pressure, water-tube boilers with steam turbines and electric generators to match. What I really want to imply from the above is that I am impressed with the fact that I have lived in the most progressive era the World has known.

"Along the way I have formed some

opinions and one of them is that the steam boiler is, to use an expressive phrase, a headache, and that the boiler and simple engine that constitute the steam locomotive do not rate very high in efficiency. That railroad executives are beginning to realize this is evidenced by their disposition to try something else. The modern steam locomotive is a wonderful machine and has fulfilled its purpose admirably. Within the limits imposed its designers have done a remarkable job.

"The locomotive picture that seems to be favored above all other shows a modern freight locomotive at the head of a train and is described as a 'So-an'-So blasting out of Here headed for There.' The black cloud of smoke trailing back the length of the train may be considered as either the cause or the effect of the blasting. Either way the noise and the smudge add up to inefficiency and wasted money. The motion of the rods and the valve gear is just as fascinating to me as it ever was but I have long since dropped the idea that power must be exemplified by an infernal noise and a cloud of smoke. I have retired and the technical papers and magazines do not have the attraction they once had so I have looked to *Railroad Magazine* to popularize some of the technicalities of railroading and, to a certain extent it does this, but I have difficulty in understanding your attitude toward the adoption of Diesel power for railroads.

"I live at the Western Gateway of the Boston & Maine railroad and I read with interest the write-up you published some time ago on Diesel power on the main line of the road. Some of the statements in that article were the cause of some laughter among my friends in the operating department of the B&M. One statement was that the Diesels could not accelerate the trains and that they crawled along at ten miles an hour, or some such speed, indefinitely. As I understand it, a demonstration train of something like 120 cars was hauled from Boston to Mechanicville at an average speed approaching 40 miles an hour. What I could not understand is how this train reached this speed without considerable acceleration. For years I could look out of my office window and see Diesel drawn east-bound trains on the ascending grade out of Mechanicville. I have counted as high as 113 cars in some of these trains, and if I am any judge of acceleration they were increasing speed at rates I have never seen in the capacity trains (about 75 cars) drawn by the road's heavy steam power. And they had what I believe was some of the heaviest power in the East excepting that of the Southern coal roads.

"I am not writing this from any desire to get my name in the magazine but because of the article headed Diesel Dyspepsia on page 6 of the October issue. Constructive criticism is always in order but I had hoped to find Railroad Magazine on the progressive side rather than on the reactionary side of the railroad power question. You make out a pretty bad case for the Diesels. I wonder why some one has not told such manufacturers as General Motors, American Locomotive Co., Baldwin, and the railroads of the dangers inherent in the cooling systems of the Diesels. I have driven an automobile since 1904 and I shiver when I think of the danger I have run due to my ignorance of the necessity of carrying a supply of chromates, phosphates, soda-ash and rust inhibiters under the back seat of the flivver. As to heating the Diesel drawn passenger trains we get right back to the steam boiler and that is, as you imply, a headache. But it is somebody else's headache."

* * *

WHIPPOORWILL. E. E. Gordon, General Passenger Agent for the C&EI has a good deal to say about the letter from E. L. Thompson on page 129 of the September, 1947 issue; specifically, Thompson's opinion that "The C&EI continues to deserve bouquets for branching out with its streamliners. Steffe failed to point out that the *Meadowlark* has far exceeded the road's fondest hopes and extra equipment has had to be added.

Courtesy of Maine Central

NEW pine tree symbol, white against a deep red finish, being painted on one of the first freight cars to receive it at Waterville Shops. Designer was George K. Stevens, first class painter

However," Thompson continued, "the last time I heard about the *Whippoorwill,* it was glumly looking around for more passengers."

"That may be what Steffe and Thompson believe," says Mr. Gordon. I notice they don't state the source of their information. The truth of the matter," he goes on, "is that both trains have been a success from the start. We can safely assert that our loadings on the *Whippoorwill* are not looked with pessimism.

"It's true we little dreamed that the *Meadowlark,* with its thinly populated territory, could attain such popularity as it did. We felt assured beforehand that the *Whippoorwill* would do all right—and it has."

OBITUARY. The Editors have just received the sad news of P. W. (Pat) Graham's death on June 27, 1947, in Galesburg, Ill. He was featured on page 134 in this department in the November issue which went to press a week before Mr. Graham's demise. C. H. Knight, 232 N. Ave. 53, Los Angeles, who sent us the earlier item is our informant this time, too. At the time of Mr. Graham's passing, the local papers gave considerable publicity to the story of his life and the Trainsmens weekly publication credited him with membership in Lodge 24 since May 6, 1886. Mr. Knight says that, "coincident with the passing of Mr. Graham, Herma Clark who writes the column 'When Chicago Was Young,' for the *Chicago Sunday Tribune,* made some reference to him in her column published just about the time of his death. I have not yet secured a copy of her article and do not know in what manner she connected him with the early days of Chicago. There is no doubt, though, that she must have spoken of his charitable work among children. Many an honest man, now grown, is a monument to Mr. Graham's loving interest in him when he was a youth."

* * *

REWARD UNCLAIMED. This item comes from D. D. Goertzen, 265 Addison Ave., Twin Falls, Idaho. It seems that along the northern canyon wall of the Snake River between the bridges of Hansen and Rin-To-Rin lie the badlands of southern Idaho. In the early days, Devil's Corral, located in this region, was mentioned with awe by Indians and whites alike. The superstitious feared certain mysterious echoes from the Devil's

Corral which they attributed to evil spirits.

This Y-shaped canyon, 3 miles long, ¼ mile wide, afforded protection for roving badmen who stole horses from railroad construction camps and cattle from the valley's stockmen. Accessible only from the river bottom or by a little-known trail across the "brakes," it served as a natural fortification for rustlers. Lack of officers of the law, coupled with fear, caused the posting of a liberal reward by the railroad for the recovery of company horses.

Only one man, Lew Landers, had the courage to try to collect this reward. Crazed by family misfortunes, Lew drank heavily. One day, while on a spree, he set out alone into the Devil's Corral. Railroad companions watched him go, shook their heads. They waited for a day, a week, a year. Still Lew did not appear to claim the reward. Some thought he had joined forces with the desperadoes or been killed by them. A year later, a skeleton was found on a butte and in a rotted coat pocket nearby a letter addressed to Lew Landers. What happened, nobody knew. Today that place, near Eden, bears the name Skeleton Butte.

* * *

OLDTIME FLAGGING. Gather 'round the pot-bellied stove, brothers, and listen to this one from C. L. Kelsey, 110 East Bay Ave., Balboa, Calif.:

In the fall of 1900 I hired out as operator on the Chicago & North Western at Boone, Iowa, under a chief dispatcher whose name I recall as E. M. Dennis. I landed second trick at old siding SC, a passing track half a mile long and tower located away out in the country between the stations of Missouri Valley and Logan, Iowa. It was a two-man job with 12-hour shifts every day in the week at the munificent salary of $40 a month. Here I worked until March, 1901. The nearest habitation was a farmhouse located on a hill beyond a strip of woods north of the tower, at which place I boarded, along with the other op, H. J. Radden.

That winter set a record for severity. During the coldest period we spoke with nobody for weeks at a time, except each other, the old farmer and his wife where we boarded, an occasional member of a train crew taking siding at SC, a trackwalker, or the section boss. It was a lonely life. To heighten the isolation on the night shift, 7 p.m. to 7 a.m., I was often serenaded by hoot owls and occasionally by a pack of coyotes in the dark woods. These sounds contributed nothing in the way of cheerfulness to those long winter nights.

One damp, windy, March night Condr. Gus Seiler, westbound on a freight run, headed in at SC to clear for Number 5, following on a card. After closing the switch, his rear brakeman came upstairs to visit me while awaiting the varnish. In our conversation it developed that we

DONALD COLE*

has switched to Calvert

because Calvert is smoother

*of 1221 Whitney Bldg., New Orleans, La.

CALVERT RESERVE Blended Whiskey—86.8 Proof—65% Grain Neutral Spirits. Calvert Distillers Corp., New York City

ROUNDHOUSE at Benton Harbor, Mich., on New York Central Division of the Big Four, snapped Sept., 1947. *Above*, road engine 2005 used to haul long fruit trains to MDT freezers

had each "done a hitch" in the Army and had been stationed at some of the same places, though in different regiments. Thus we sat chewing the fat.

On the next trip Gus, again westbound, headed in at SC to clear Number 5 and dropped his flagman in the cut just inside the slight curve east of the tower. After the freight, butting a stiff west wind, had come to a stop, I heard Gus repeatedly shout something. Looking down from a window, I saw him excitedly wave a lantern from where he stood on the ground beside the caboose, then from on top of it, continuing to wave and shout toward the head end, but apparently getting no response.

Raising the window, I yelled down: "What's the matter, Gus?"

"Why," he hollered, "we are in the clear, but that blankety-blank hoghead forgot to call in my flag, and we're gonna stab Number 5!"

There happened to be an old cornet reposing on a shelf above the east window, left by some previous op. Remembering that Gus's hind man had been a soldier, it occurred to me that he would be familiar with bugle calls. So I blew the recall, down-wind. Just before doing so, I heard the fast train whistle for a crossing east of the curve.

Shortly after the bugle call had floated out on the air, the flagman's red and white lanterns hove into view from the western end of the cut. I repeated the recall. Then the red lamp blinked out and the white soared into a highball. Immediately afterward I heard two short blasts and Number 5's markers passed my board right on the dot.

Gus told me that he had only recently been set up as conductor and would probably have been demoted if they had stopped the first-class train. Years later, whenever he met me, he would talk about that bugle call. I'm told that he's now living in retirement at Boone.

* * *

ROUNDHOUSE at Benton Harbor, Mich., built in 1904 around a turntable dating back to 1900, has recently been razed by the Big Four (New York Central) and with it passed into retirement Walter "Happy" Hansel, oldest active member of the roundhouse gang

Photos from George Vargo, 315 Brunsen Ave., Benton Harbor, Mich.

CLOSE-UP of the Benton Harbor roundhouse, showing its age at the half-century mark. The old building was recently razed

there, reports George Vargo, 315 Brunsen Ave., Benton Harbor, on the basis of a newspaper clipping and information obtained from Otto Dorsett, roundhouse engine hostler.

As built originally, the old roundhouse, held four engines at one time, but was burned to the ground in 1909, except for its steel frames, and was rebuilt the same year, only to burn to the ground again a year later. Thus the one just torn down was a product of 1910. Happy mourns the fact that, "A roundhouse will never be built here again."

HENRY FORD made railroad history when he owned the Detroit, Toledo & Ironton, with its nickel-trimmed power. For years a run left Springfield and Ironton each morning for the opposite city, also runs each way between Detroit and Bainbridge. All were pulled by little 4-4-0s. Numbers 11 and 12 with a mail-baggage car and two coaches made up the Ironton end, while 6 and 7 with mail-baggage and one coach took the Detroit run.

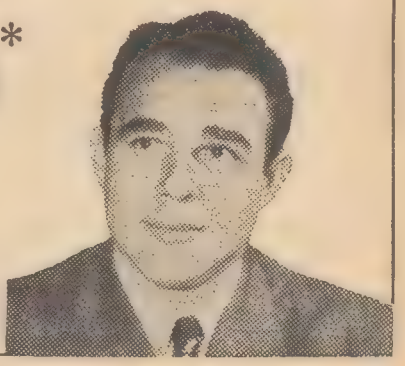
Then, according to Frank D. Tracey, Cherry Hotel, Washington Court House,

Edward Mann*

has switched to Calvert because Calvert makes a lighter highball

*of 1522 Kelton Ave., W. Los Angeles, Calif.

CALVERT RESERVE Blended Whiskey—86.8 Proof—65% Grain Neutral Spirits. Calvert Distillers Corp., New York City



O., who supplied this information, two doodlebugs were put on the north runs with mail, baggage, smoker and coach compartments. Although they broke down on many a trip, they brought the first air-horn sounds to the countryside. Later, under Pennsy control, several locomotives were renumbered and lettered DT&I. The old runs were discontinued, replaced by a through trip each way, using PRR Atlantics and vestibuled coaches. As Donald M. Steffee mentioned in a recent article, doodlebug service is now used, but only to a certain extent. One of these was stripped of its motors and is used as a mail-passenger car in a mixed freight leaving Jackson each morning, running to Springfield and return, handled by a Pennsy 2-8-0. An old DT&L America-type engine rests in Ford's Museum near Detroit. Railfans may take a scenic trip over the old horseshoe curves and grade at Summit Hill by boarding the train either at Waverly or Washington Court House, O.

* * *

CANADIAN PACIFIC is dipping into its financial reserves to buy much-needed equipment, especially for use in the West, and has just placed orders for new locomotives and freight cars costing more than $22,500,000. These orders, added to others placed earlier in the season, bring the total expenditure for rolling stock so far this year to more than 47 millions.

Of the forty-eight new engines which will be assigned to western lines, thirty are passenger-freight Pacifics of the 1200 Class; six heavy passenger Selkirks, 1200 Class, the largest locomotives in service in the British Commonwealth, and twelve heavy freight Mikados, 5400 Class. Except for oil-burning Selkirks and eight of the Mikes, all are coal-burners. Andre Morin, 5525 Angus Drive, Vancouver, B. C., Canada, who sent us this data, wants the specifications of the new engines as soon as they are released.

Speaking of CPR reminds us of the photo of engine 5311 on a siding near Rossport, Canada, published in our Sept. '47 issue. We had forgotten to mention that this picture came from Clark Smith, Clarion, Iowa.

* * *

OLD-TIMER. E. William Weeks, 217-C Strand St., Santa Monica, Calif., tells us he began reading *Railroad Magazine* as early as 1906, when it was founded. He started railroading fifteen years before that as a carman on the Canadian Pacific, and in 1907 was elected grand secretary-treasurer of the Railway Carmen of America, with headquarters at Kansas City, Mo.

"Shortly afterward," he goes on, "the editor of *Railroad Man's Magazine* asked me to write an article about the Brotherhood for him, also the Ladies' Auxiliary, the Loyal Star, and send him photos of the officers. "In 1925 I retired and left Kansas City. 'The Big Hill,' in your September '46 issue by Edmund E. Pugsley, really gave me a lift. I knew nearly all the men mentioned in that article as having worked on the Big Hill and a lot more besides. I could tell you some stories about the Hill that were never reported and certainly never published, stories I know to be true, because I was there at the time.

"For example: One Sunday Jim Fidler, Sr., engineer, unhitched his little, standard, passenger 8-wheeler at Logan and turned the train over to be taken down by the three helpers (engines somewheres between 313 and 390 inclusive). I believe I have worked on all of those engines. Anyhow, I was working in the shops and had Sundays off. Charlie Cary and one of the Fidler boys who fired for him was going to give me an engine ride all the way to Donald, which was at that time (in the 1890s) the end of the run—and, believe me, it was a real scenic ride.

"Jim started down the hill immediately so he could eat his Sunday dinner in peace at Field. But he was too anxious to make time and too familiar with the Hill, with the result that his engine got away, and at the little rock tunnel he told his son to jump. Then, after tearing off his sus-

penders and tieing down the whistle, he also jumped.

"The engine skyrocketed through Field and out over the main line, her whistle shrieking, until finally she lost momentum. As Jim had placed her in reverse, she started back up the Hill, and rushed through Field eastbound. When she reached the vicinity of the little rock tunnel, she was going so slow that Jim and his fireman-son swung aboard. The engine, as if ashamed of her escapade, permitted them to ease her gently into Field, after which the two men ate a good Sunday dinner.

"One rainy morning the eastbound express was wrecked opposite the peaks known as Three Sisters. I think it was March, 1893. The private car of General Nelson A. Miles was attached to the rear. A carload of salmon bound for the New York markets was kicked down into the river, the iceboxes of fish burst open and the salmon floated away. We arrived there shortly afterward and found General Miles in full charge of the situation, which shows how Army officers react to emergencies. We salvaged most of the fish. As a result, we were fed with red Steelhead salmon for three solid weeks, three meals per day. I was so sated with this diet that I couldn't eat fish for twenty years afterward.

"I'd like to ask Mr. Pugsley if Engineer Wheatley and one of the Fidler boys were not killed when helper engine 313 exploded on the Hill, in about 1899 or 1900. I saw the frame of that engine, but the two men had been blown to pieces. It is my hope that other oldtimers who used to work on the Bill Hill will write to me."

* * *

ODD NAMES gleaned from a Canadian Pacific timetable by George C. Hackett, W. 1203 9th St., Spokane 8, Wash., include Adanac (spell it backward), Sask.; Tadanac (Canada T in reverse), B. C.; Ceepeecee, B. C., and Ebor (whose robe?), Man.

* * *

A PLEA for the publication in *Railroad Magazine* of photos from countries outside of America comes from one of our Australian subscribers, Pat Honeyman, 6 Shanks St., Gympie, Queensland. We welcome expressions of opinion on this subject from other readers.

"Through the medium of your magazine," Mr. Honeyman writes, "I have made many friends and pen pals in North America. One of them is a Southern Pacific fireman who sends me much interesting data—books, timetables, magazines, train notices, etc.—and I send him Australian material. The data I receive is of interest not only to myself but also to my dad, who is a locomotive engineer, and to many of my work mates who, like myself, want to know about railroad conditions on the other side of the globe.

"I have always thought that working conditions on American roads were good;

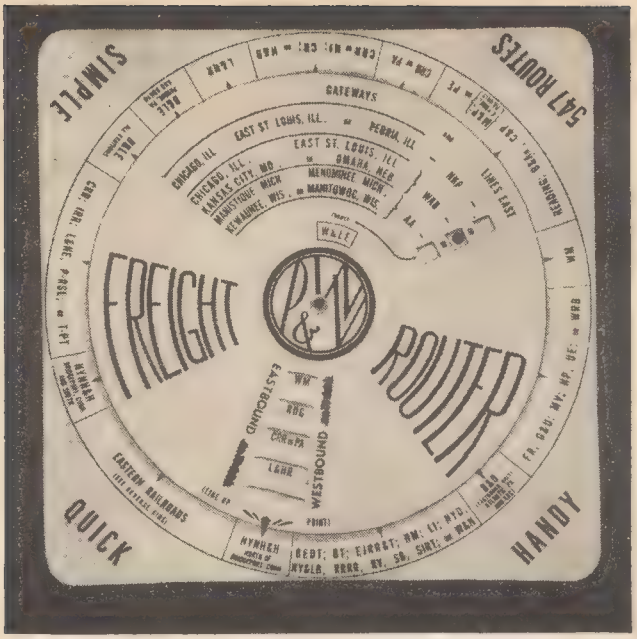
Bert Lowe*

has switched to Calvert

because Calvert is mellower

*of 301 South 12th Street, Philadelphia, Pa.

CALVERT RESERVE Blended Whiskey—86.8 Proof—65% Grain Neutral Spirits. Calvert Distillers Corp., New York City



Courtesy Pittsburgh & West Virginia

P&WV'S automatic freight router resembles a statistical graph, but saves the DS a lot of head work

but after reading of some things that you men have to put up with, I'm glad to be working for the Queensland Railroad, even though our equipment is not streamlined.

Our main trouble in maintaining schedules is motive-power shortage, caused by excessive engine failures as a result of heavy wartime traffic. Also, despite many promises, we have not yet received any of the sixty-four new locomotives that had been ordered from the builders.

"As fast as engines are put out of shops, more have to go in for repairs. Queensland engines go to shops only when absolutely knocked up. An engine should be shopped for a general overhaul after covering 80,000 miles, but this time is often lengthened to give preference to engines that need repairs even more urgently.

"Recently our division had a bad smash, the worst in twenty years. The engine crew and fifteen passengers were killed. At this writing, the cause of the wreck is still unknown, as neither engineer nor fireman was available for questioning. The disaster has given impetus to the demand of progressives for the introduction of steel cars on this system. At present, all of our passenger equipment, even on the famous *Sunshine Express*, is steel framed but of wooden construction.

"Our railroads here in Australia are feeling the pinch of airplane competition. First-class rail and plane fare are virtually the same. To travel by rail between Brisbane and Cairns, for example, takes you only six hours if weather and other conditions are good, but 43½ hours by rail. A passenger has to be an ardent railfan indeed to prefer the latter.

"Nevertheless, Queensland Railroads provide sixty-five per cent of all Queensland revenue, apart from that received from the Commonwealth of Australia, and employ 23,000 people."

* * *

ADDING to the list of locomotives numbered the same as their wheel arrangements (June issue), George E. Aiken, 34 Mauch Chunk St., Tamaqua, Pa., says the Reading recently acquired several Texas-type engines which they numbered in the 2100 series, so there is a 2-10-4 type numbered 2104.

George Park, R. R. 3, Truro, Nova Scotia, reports that the other day Bill Lynch's Greater Exposition Shows was in Truro with the fifteen Canadian National automobile cars he uses to haul his equipment. Two of these cars, strangely enough, are numbered consecutively 574387 and 574388.

Another oddity, discovered by Howard Ferguson, 728 Sandwich Rd., East Wareham, Mass., was the recent presence of three red Pennsy day coach on the New Haven's Cape Cod branch, the train being the regular morning local, out of Boston.

NORFOLK SOUTHERN'S new management hung up an unusual record in its first month, last July, by earning money enough to wipe out an accumulated deficit of the year's first six months and leave about $7000 in the treasury, due largely to the abnormal number of loads of potatoes originating on the Northern Division, reports Henry T. Crittenden, 909 E. 26th St., Norfolk 8, Va. But a week later, he laments, a train wreck near Bailey, N. C., cost the company $50,000.

Mr. Crittenden relates his impressions of a ride he took on NS train Number 1 from Norfolk, Va., to Edenton, N. C. This train consisted of a 2-8-0 engine built in 1927, two converted boxcars hauling carload lots of express, a combination RPO and express car, a baggage car, and a wooden coach. Each of the last three cars must have been at least forty years old. He writes:

"The passenger car was divided into two sections, one for white folks, the other for colored. Nobody seemed to care which race took which end. The first passenger to arrive was allowed to sit in either section, and those who strolled in later seated themselves accordingly. Most of the passengers appeared to be connected with the railroad in some way. The equipment was far from modern, but the travelers were one of the friendliest groups I've ever had the pleasure of riding with.

"At 10 a. m. we eased out of the station, a short covered platform on Main Street, crawled down the midle of the street and entered Carolina yard, where we stopped twice, once at the entrance and once at the yard office. Track gangs and switching crews waved; the passengers waved back. What the heck! I waved too, and we left town.

"When surveyors laid out the old Norfolk & Elizabeth City, predecessor of the NS, they pointed in the general direction of Elizabeth City, saying, 'We got to go that-away,' and they went. The result is some fine trackage, long tangents that disappear in the distance. At one point, if your eyes are good, you can see three stations. When the straight track hit a swamp it curved enough to cross at a right angle and then swung back to the straight line. Obviously, despite the road's wooden-axle reputation, this track was built for high-speed operation.

"I clocked our speed for mile after mile," and every eighty seconds a milepost shot past. The track is in excellent condition, rock-ballasted as far south as Hertford. Our old wooden coach rode surprisingly well. We didn't let a single stop get by us. We paused at every one, even if only to toss off a mail sack or a few pieces of express. Few passengers got on or off. Most of those aboard when we left Norfolk (Berkley) let it be known they were going to Edenton or beyond. When the conductor finally got around to lifting my ticket, he sat beside me and gave me some helpful information about the route. I couldn't help but contrast him with the perfunctory gold braid I had

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Protected by a patented mechanism, GOTHIC JARPROOF watches "can take a licking yet keep on ticking". Precision-built, exquisitely styled. Priced from $33.75 to $1,200. Write for free booklet "PP".
*Balance staff and its jewels
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Gothic "Cadet" 17 Jewels $39.75**
GOTHIC JARPROOF WATCH CORP., NEW YORK 19, N. Y.

traveled with on swankier but less intimate trains.

"Oh, the car got hot and dusty, it being summertime, but nobody seemed to mind. They talked and talked. At length a young fellow made a break for the rear platform, informing everyone in general that the station agent at Camden, N. C., was 'the prettiest gal on the railway.' I believe he was right. When we reached Camden a good-looking young lady, the agent in charge, had smiles and waves of the hand for just about everyone on board. No wonder some freight crews get balled up unaccountably at Camden and have to take siding there.

"Then we arrived at Elizabeth City, about forty-five miles from Norfolk. Here our crew cut off an express car and picked up one for Raleigh. We all waited patiently. One of the passengers sang for us. Friendly? Brother, give me the little roads any day.

"Outside of E. City, as the railroad men call it, we went into a grass-grown siding to let a freight pass. She was making tracks for Norfolk with one of the newest steam engines, a 2-8-4. Incidentally, these are the first locomotives with trailing trucks the company ever owned. From Hertford to Edenton the ballast is dirt. At one time it might have been cinders, but no longer. Surprisingly enough, the cars seemed to ride more smoothly here than on the rock-ballasted track. Bridges are well kept, all the old ties burned, and the ditches weeded. We smoked down through the swamp and so reached Edenton."

Mr. Crittenden returned on Norfolk Southern train Number 2. "We left town in a cloud of dust which settled over everything. The conductor came around with a feather duster in one hand, making wild sweeps at the seats while he lifted fares with the other. A brakeman was busy likewise in the other section of the car. But the same friendly atmosphere prevailed as I had found on train Number 1.

"We were half an hour late highballing out of Edenton and we stopped at every station, as on the previous trip, but the engineer steadily made up time. He beat his little engine unmercifully and she snapped that train up the line by leaps and bounds. Our coach was sadly in need of tightening up. Each end literally rode the truck under it while the center creaked and groaned, twisting first this way, then that. The windows rattled. At times it was hard to believe that, when gazing through the door in the center bulkhead, you were looking into the same car, so great were the gyrations of both ends. The brakeman explained that the superintendent had said something would have to be done about that car, for she was forty-five years old and needed a bit of work on her.

"South of E. City we took the siding to let a freight pass; but before the switch points had stopped vibrating from the passage of the drag, we were nosing out on the main. The brakeman came in and sat beside me. We talked railroading, of course. Like other employes, he expressed bitterness at the previous management, which apparently had owned large blocks of stock in the Norfolk Southern Bus Corp. and had seemed to be deliberately throwing business to the trucks and busses, cutting the railroad from a large system to a one-train-a-day pike. But the brass hats went too far when they quietly asked permission to discontinue all passenger service. At a hurriedly-called board meeting, embarrassing questions were asked, heads fell, and the next day the Norfolk Southern was under new management. The request for ending passenger service was promptly cancelled.

"At Camden I kept both eyes open for the pretty agent. She was on the job, as attractive as before. Seeing her again aded a lot to the pleasure of my trip. When the train pulled into Norfolk I was dirty and hot but very happy."

* * *

CENTRAL VERMONT article. "Border Line," by William L. Rohde, wins hearty approval from James Wilson,

138-30 Northern Blvd., Flushing, N. Y., but he states: "Recent developments seem to have caused it to contain a factual error. The CV steamers, evidently run no more. Ever-increasing demands of the Maritime Union caused 'suspension' of this service in accordance with the ICC permit of last January 20th. The other day I saw all three of CV's freighters (the *New York*, the *New London,* and the *Vermont)* laid up at the CV docks at New London, Conn., in dead storage, so I assume the 'suspension' is more or less permanent.

"Incidentally, I am much pleased with *Railroad Magazine's* policy of publishing annual indexes. I have all the issues since 1931, and these indexes are very helpful. I wish you had started to run them before the 1942, in the April '46 issue."

* * *

MONORAIL. A. J. Franck, Box 171, Richmond Hill, N. Y., asks why he hasn't read anything about New York's Tunis Monorail that succeeded the narrow-gage horse line paralleling City Island Road and preceding the storage-battery line operated by 3rd Avenue Railway system, the old Pelham Park & City Island RR. Our correspondent says he once rode the monorail from Bartow to City Island bridge. Who can supply further information?

* * *

STRICTLY PRIVATE. Charles L. Hughe's item in a recent issue, about a Rock Island engineer sending his fireman's watch by telegraph, reminds C. A. Bailey, 1133 Dearborn St., Augusta, Kan., of an incident that occurred when he was a second-trick operator at Cushing, Okla., on the Santa Fe. One day a demure young miss came into the depot and asked for a message blank. Mr. Bailey handed her a pad of blanks and after she had finished writing he said, "I'll read it over to you to avoid any mistake." Thereupon she grabbed the paper and dashed out of the office, saying: "No, sir, you'll not read *my* message!"

* * *

FUEL BILL. "On page 84 of your November magazine," writes C. E. Kane, Executive Assistant, Illinois Central Railroad, "I note that you quote some figures on the Illinois Central's supposed yearly consumption of coal. Apparently these figures are derived from an article entitled 'Paul Bunyan's Coal Train' from the February, 1947, issue of the Illinois Central Magazine—an article which purported to cover only business carried on between the ICR and the Kentucky mines. We also do a large amount of coal business in southern Illinois, serving some of the most important mines in this general part of the country.

"As a consequence, our total fuel bill is considerably larger than that you have indicated. According to my own figures, the ICR consumed roundly 4,400,000 tons of coal in 1946. The corresponding calculations for that amount would be a single

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Courtesy of Central Vermont Railway

HANDSHAKE at end of the last run for Dan MacDonald, retiring engineer, and M. E. Barnes, CV'S assistant general manager

train 600 miles long, composed of more than 80,000 cars pulled by nearly 1,300 freight engines."

* * *

RETIREMENT. Hale, hearty, healthy and active in his 67th year, Dan MacDonald is beginning to enjoy life as a railway pensioner. Mr. MacDonald lives at 164 North Main Street in St. Albans, Vt., where he has long been a prominent figure in civil and social affairs. He has worked for the Canadian Pacific, the Boston & Maine, the Maine Central and the Grand Trunk, but 36 of his 41 years of railway service have been with the Central Vermont. Dan has two brothers, Joe and Marshal, both Central Vermont locomotive engineers.

His last assignment on the Central Vermont was at the throttle of the big Northern type engine which hauls the crack trains *Washingtonian* and *Montrealer,* but Dan's 'last run' was made between White River Jct. and St. Albans at the throttle of 603 hauling the *Ambassador.* Upon arrival in St. Albans the evening of May 23rd, Dan was greeted by more than 150 railway and community friends, including delegations from the city government, civic and fraternal organizations, railway officials and employes and townspeople.

MacDonald is a native of Grand River, P.E.I., where he was born in July, 1880, the son of a blacksmith and farmer. His first railroad job was with the Canadian Pacific at Brownville Jct., Me., in November of 1898. He got a job as a fireman on the Maine Central in 1903 running between Portland and Bangor. Four years later he was set up as an engineer. In August, 1908, he went to work for the Grand Trunk running out of Montreal and in January, 1909, he was transferred to the Central Vermont.

"Running an engine is not real work but a pleasure to me," Dan holds; "and I've never been sorry that I became a railroader."

* * *

LAST STOP is the Reader's Choice Coupon *(page 145),* which guides your editorial crew in selecting material for future issues of *Railroad Magazine.*

Some readers use the coupon. Others prefer not to clip the magazine; they send home-made coupons, postcards or letters. Regardless of how votes are written, all count the same. Results of balloting on the November issue show these titles listed in order of popularity:

1. Jawbone, *Bedwell*
2. Canada Rolls Its Own, *Rohde*
3. Light of the Lantern
4. True Tails of the Rails
5. Our Oldest Short Line, *Hubbard*
6. Electric Lines
7. On the Spot
8. Talented Train, *Colton*
9. Locomotives of the Month
10. Man O'War, *Cross*

Most popular photos: pages 128, 82

Photo by Frank Quin, 8418-88th St., Woodhaven, N. Y.

CHUGGING out of Montgomery, N. Y., ex-Ulster & Delaware 800 and 804, exhaust on the smoky end of a Kingston-bound Wallkill Valley freight

Railroad Camera Club

ITEMS sent to the *Switch List* and *Model Trading Post* are published free, in good faith, but without guarantee. Write plainly and keep 'em short. Print name and complete address.

Because of time needed to edit, print and distribute this magazine, all material should reach the Editor eight weeks before publication date. Redball handling is given to items we get the first week of each month, if accompanied by latest Reader's Choice coupon (clipped from page 145 or home-made).

Due to scarcity of space, we prefer that no reader be listed here oftener than once in three months.

(R) indicates desire to buy, swap or sell back issues of *Railroad Magazine* or its predecessors, *Railroad Man's* or *Railroad Stories. (Specify condition of each copy.)*

(*) indicates juicefan appeal.

Model Trading Post

R. BERRY, Box 1058, Seaside, Ore., has 12-volt new Ho loco, car kits, items; also some used; will take some Lionel 0, 00 gage locos, switches in trade or will sell.

CEO BILDERBACK, 4013 Terrace St., Hollidays Cove, W. Va., will sell Lionel 224E, tender, 2460 wreck crane, 2420 work car with search light, 12 pr. Lionel 4-wheel trucks, all excell. cond

A. W. BURGER, Box 193, Pearl River, N. Y., will sell or trade several compl. Athearn kits, built-up Athearn cars, Selley castings, Picard, N. Y. C. caboose; wants 5" gage Nord 2-8-2, 2-8-0 or Miller Alco Diesel switcher. Stamp for compl. details.

PHIL CORRERO, 304 S. 2nd Ave., Cleveland, Miss., has Lionel std.-gage 380 loco, baggage, mail car, dining car, 1 pass., 1 observation car, $25; no transformer of track.

HOWARD GEBHART, 451 Ludlow Ave., Cincinnati 20, O., wants 3 pr. Lionel 027 switches, good cond.

CHAS. K. GIVEN, 3411 Brunswick Ave., Drexel Hill, Pa., has HO Birney kits, metal sides, working trolley poles, Varney motor unit, $14.50 ea; also Varney 6 V. D. C. Power-Pak $5. List, pix, 10c stamp or coin.

EDMOND M. GRANVILLE, Highland Park Pl., Rye, N. Y., will sell entire O gage rr., 3 locos,

RAILROAD CAMERA CLUB is open to all who collect railroad or streetcar pictures or other railroadiana such as time tables, passes, train orders, trolley transfers, magazines, books, etc. There are no fees, no dues.

Membership card and pin are given free to anyone sending us the latest Readers Choice coupon and a self-addressed stamped envelope. If you don't want to clip page 145 make your own coupon. Address *Railroad Magazine*, 205 E. 42nd Street, New York City 17. Tell us what you want or what you offer; otherwise your name will not be printed here.

SECOND PRIZE WINNER in the $3,000 National High School Photographic Awards judged at the Museum of Modern Art in New York City on June 10, 1947. Henry G. Roscoe, 24 Emerson Ave., Harmon, N. Y., snapped the picture at New York Central's Harmon electrical shops in the fall of '46

14 frt., 4 pass., roundhouse, turntable, all access, $650. Send for details.

GEO. H. HAGUE, 6 Carver St., Fall River, Mass., has about $40 worth used model rr. parts to trade for war surplus radio eqpmt. Pix furnished on request.

ALVIN HENDERSON, 1614 East St., Siloam Springs, Ark., will sell, trade new Walthers O gage Milw. express car, 1 Walthers Milw. express car kit for AF 3/16 S gage cars, switches.

DR. C. KOWAL, 1846 W. Cullerton St., Chicago 8, Ill., wants toy trains made before '25. State model, cond., price.

JERRY McINTEE, 1315 Genesee Bldg., Buffalo, N. Y., has O gage eqpmt. for sale, swap. Send for list; all excell. cond.

ROBT. J. MAUGER, 2407 Perkiomen Ave., Mt. Penn., Reading, Pa., has tokens, trsfs., pix, PRR calendars, mech. pencils, sheet aluminum HO brass wheels, bushings, 101 other items; request. Wants *Hiawatha* (Lionel) cars, any partly or unfinished loco kit.

HERMAN H. MITCHELL, Box 482, Bayville, N. Y., will sell brand new quartering fixtures, or swap for model eqpmt., pref. ½ in. scale, 2½ in. gage.

RAYMOND A. MENENDIAN, 2332 Coventry Rd., Columbus 8, O., has Lionel engs. 5, 6, 54 to trade only for *Model Railroader* '34, '35; *Lionel* mags. '30, '31, '32; old toy tr. catalogs.

E. ROBT. MORSE, 10 Stickney Rd., Medford 55, Mass., will sell HO, AF Hudson, good cond., converted to DC. Best offer.

MANUEL NORIEGA, Jr., 19 Hartford St., San Francisco 14, Calif., will buy any elec.-type, std.-gage locos and frt. cars in good cond.

LARRY PALMER, Sackville Mills, Wallingford, Pa., has HO Varney *Mikado*, good cond., one driver loose, Vanderbilt tender, 4 new asst'd frt. cars, 1 caboose; will trade for Lionel 708 0-6-0; good cond. First 708 received gets 2 new HO kits free.

RICHARD PEDLER, 1413 Jefferson St., Muskegon Heights, Mich., wants to buy HO gage frt., pass. cars, excell. cond. only; or will trade excell. Walthers Diesel switcher for same.

HERMAN L. RETTER, East Church St., Eden, N. Y., wants 110 Volt A.C. 60 cycle transformer, delivering 6 to 30 volts for std. gage trains.

E. ROBERTSON, JR., Patoisa, Ind., will sell, swap for AF. HO tr., eqpmt., 2 3/16 sc. 4-4-2 Atlantic type loco, 3 pass. cars, 3 frt., all plastic auto couplers, 28 3/16 2-rail trk., Lionel 156 sta. platform, etc., in first-class shape.

HARVEY W. ROE, 68 Lake Ave., Tarrytown, N. Y., wants Lionel std. gage elec. loco, cabs, frames for No. 10, 318E; also steam loco boilers, frames, tenders, parts for 392E, 400E.

A. D. SLATER, 1596 Wood Rd., Cleveland Heights, 21, O., builds wooden operating loco replicas for museums, advertising displays, ornamental decorative purposes, movie studios. Toy engs. also made.

(R) RICHARD STAFFORD, 3842 E. 12th St., Indianapolis 1, Ind., has old items in Ives, AF, Bing, Dorfan, and Lionel, for trade for similar items; both locos, cars. Has few catalogs, *Railroad Magazines*, and issue of model rr. publication for trade.

(*) ART WEINMAN, 416 Central Ave., Rochester 5, N. Y., wants Lionel std. gage cars, mail 32, parlor 31, pullman 35. Cash or trade scale O-gage Birney trolleys without motors.

DON WILMOT, 1429 Bucklin St., La Salle, Ill., wants cars, 800 series, other Lionel tr. eqpmt. Must be good cond.

Switch List

W. L. AUSTIN (R), 501 E. Belknap, Ft. Worth, Tex., has *Railroad Magazines* Sept. '32 to date, none clipped, front cover missing on a few; $25 for lot.

STANLEY BARRIGER, 622 Oak, Winnetka, Ill., wants pix old locos, rolling stock, etc., still operating, or recently abdn.

(R) HOWARD D. BEARD, 50 Oakwood Ave., Troy, N. Y., wants to trade trsfs. from Troy, Wash., Chicago, San Francisco, N. Y. for those of any Amer. or Europ. city; also swaps tts., list for stamp. Will buy *Railroad Magazine*, Aug. '47; *Trains*, July, Sept. '47; also trade tr. ords.

(*) RICHARD J. BECK, Box 396, Gulfport, Miss., swaps trsfs, tokens, all lines; has lists dupl. tokens to send.

E. L. BRACEWELL, 1114 N. Ochoa #3, El Paso, Tex., has switch key initialed GVG&N RR., letter S stamped on opposite side. Can anyone identify for him.

(R) CHAS. C. BREWER, 262 East College Ave., State College, Pa., wants *Railroad Magazine* Dec. '29 to Jan. '33, *Ives catalogs*, Ives Steam type locos, Ives cars in 60, 120, 130, 140 series, old cast iron locos, cars; back copies *Railroad Magazine*, *Trains*, *Loco Firemen*, many others, to trade for above or sell. Make offer; request list. Prices reasonable, charges prepaid.

(R) E. D. BRICKING, 1207 Brookline, Louisville, Ky., will sell *Railroad Magazine*, Jan. '37 to Dec. '44; 25c ea.; also some *BLE* mags., *Trains*, *Railway Age*.

O. W. BROOKS, Box 326, Renovo, Pa., has '25 PRR rulebook, *Pocket List Railroad Off.* '36, '47. Make an offer.

ERIC BRUNGER, 224 Lincoln Ave., Syracuse 4, N. Y., wants copy *Car Builders Cyclopedia* prior to '20; write stating cond., price.

JOHN E. BUTLER, Box 90, Mahaffey, Pa., wants copy *Bald Locos*, Apr. '28; also Rio Grande Sou, D&RGW emp. tts. from Alamosa Div. Write, stating price.

JOHN T. CANNON, 609 S.E. 8th Ave., Minneapolis, Minn., lists 95 Soo Line negs., size 616 for sale, Camera F4/5-1/400, sell lot only. Make offer.

TED CANNON, 1603 Alder St., La Grande, Ore., will sell tts. '38 to '46, 15c ea. Write for list.

JOHN T. COUTS, 1021 Lincoln Ave., Pittsburgh 6, Pa., has B&O, P&LE emp. tts. to trade for C&O, esp. Hocking Valley Div. Will trade pix for info. on old HV locos.

(*) JAMES CROWTON, 120 So. Stoneman Ave., Alhambra, Calif., offers set of 10 old horse-drawn

streetcars, elec. double-decker pix, p. c. size, dating before 1900, $1.

(*) WILLARD B. DAVIS, 563 Oakley Ave., Lynchburg, Va., has C&O, SO, N&W tr. ords. size 116 pix; will trade for streetcar, bus tokens.

(*) WM. J. DeWEES, 1006 Woodside Ave., Upland, Chester, Pa., will buy or trade Chester Traction, So. Penn. Traction, Del Elec. Power Co. negs.

1st Sgt. GEORGE A. DODSON, RA 20737728, Hq. & Hq. Co., 2nd Engr. Cons. Gp., APO 815, c/o Postmaster, San Francisco, Calif., will pay $20 for *Car Builders Dictionary*, '06, '09, '12 or '16; $5 ea. or C&A emp. tts. before '31. Pays 20c for C&O Chicago-Cincinnati Div. emp. tts.

RICHARD DODWELL, 15 Rogers Rd., Toronto, Ont., Can., has size 120, 116, 122 and p. c. CNR and CPR pix; size 116 NYC, AT&SF, SP, WP pix; few IC, C&NW for sale or trade. Write for list.

THOMAS DOLAN, 46 College Pl., Ridgefield Park, N. J., wants back issues *Model Builder*.

C. F. DRAKE, 3210 Victor Pl., Wichita, Kan., has Rock Island tt. winter 1887 issue, $2.50; monthly *Off. Railway List* July '12, 735 pps. $1; *Russells Railway Guide North Central States* Feb. '15, $1.50.

(*) JOHN V. EGAN, 433 E. 65th St., New York City 21, wants to contact anyone having pix, history of abdn. New York City, Queens trolley lines. Send list, price.

(*) H. ELSNER, Jr., 13618 Cedar Grove, Detroit 5, Mich., starting collec. juice pix; wants to corres., swap pix with other fans.

CHAS. A. ELSTON, 106 Downing Ave., Downington, Pa., has new size 616 D&H loco list; also RDG, B&O, WM. Wants to corres. with D&H fans.

LOUIS J. EURINGER, 2034 N. 35th St., Milwaukee 8, Wis., has CMSt.P&P, C&NW, Soo, B&O, NYC, CNS, CSL, TMER&T Co. pix; some negs. for sale. List for stamp; list, sample, 10c.

CHAS. J. EXLINE, Home, Kan., has size 116 UP eng. pix to trade for other rds.; tr. ords. from old St. Joseph & Grand Island Ry., '26, to swap or sell. List for stamp.

JOHN FEILY, 3525 Kuebec St. NW, Washington 16, D. C., will swap books, *Loco Eng. Running & Management, Loco Catechism, Catechism of the Loco, Am. Loco Eng., Proceedings Master Car Builder Ass'n., ARA Proceedings*. Wants old *Loco Builder* catalogs, *BLW* mags. prior '28, pref. 1890 to '10 period.

J. H. FORINTON, 35 Queen St., Boston, Lincolnshire, England, (23-year-old fireman on London & North Eastern and Navy veteran) wants to correspond with Amer. engineer or fireman to swap ideas, information and railroad material.

FREDERICK FOURNER, 20 Holabird Ave., Winsted, Conn., wants 8 mm. movies, kodachrome slides B&A, D&H, NYC, NH Berkshire lines.

V. L. FUIGLEY, c/o R. Armstrong, Box 613, Cochrane, Ont., Canada, wants to corres. with fans, in France, Germany, Mexico, Spain to swap RR. pix.

1st Lt. JOHN H. GANNETT, 166 Ordnance Tire Repair Co., A. P. O. 503, c/o Postmaster, San Francisco, Calif., stationed in Yokohama, Japan, will try to obtain pix anyone wants; write request. Cost basis, or swap if able to start a model pike. Saw nice looking elec. O gage, third rail, center, 4-4-4-4, price Y4000; rate of exchange now 50 Y to $1.

(R) ROBT. GELLERSTEDT, Jr., Box 2249, Georgia Tech, Atlanta, Ga., will buy or trade for *Railroad Magazine* July '46, *Trains*, Vol. I bound; will sell or swap *Modern Locos of LMS, British Loco types*, old copies *Bradshaws Ry. Guide, Railway Mag., Railroad Magazine, Trains*.

(*) ROBT. H. GREER, 61 Belmont Ave., Wilmington 175, Del., sells, swaps size 616 elec. loco, streetcar, int. pix. Also wants gas, or Diesel elec. rail car pix. Has pix any type PRR elec. loco, MU car. List, sample pix. 10c.

(R) N. HALL, 66 Margaret St., Ashton U, Lyne, Lancashire, England, wants *Railroad Magazines*, or any Amer. mags.; will exchange English mags. or *Railway Review*. Guarantees reply.

FRANK C. HARMER, 4708 N. 38th St., Omaha 11, Neb., has compl. file *Trains* to trade for old UP material, tts., pix, books; also *Loco Dictionary* '06, '09.

(R) C. V. HESS, 42 Sidney St., Rochester 9, N. Y. will accept best offer, plus shipping for *Railroad Magazine*, Feb. '11; June, Nov. '30; Mar., Apr., Sept., Dec. '31; '32, exc. Feb., May, June, Oct.; '33, exc. Feb. June; '34 thru '40 complete; '43, exc. Mar., June, Sept.; '44, exc. Mar., Aug., Sept. Cond. poor to good, some covers missing.

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T. M. HOWARD, 313 W. 33rd St., New York City, N. Y., will sell oldtime *Hamilton* RR. watch, $75, perf. cond.; Brahemar elec. lantern, $2.

(R) CHAS. S. HUFFER, Assumption, Ill., will buy *Railroad Magazine* May-Aug. '46; Feb.-Apr., Aug. '47; state date, price before mailing. Will buy pix Ill. Terminal eqpmt.; also emp. tts.

JOHN E. HULCEL, 2212 Hollister, Madison, Wis., swaps pix National Ry. of Mexico for loco builders' plates any rd. or for NYC. PRR, UP, CB&Q, MoP pix.

S. R. ICKES, 11 Eleanor St., Chelsea 50, Mass., wants Ga. & Fla., Birm. Sou, DM&TR, GB&W, TM, THB, Panama RR., R-S Pac., T&G, many other tr. ords., will buy or trade for other ords., or B&M, New England railroadiana. Wants lists.

(*) BILL JERNSTROM, 114 Fremont St., Elkhart, Ind., will sell to highest bidder 5x7 orig. glass plate neg. Ind. Serv. Corp. 22 line car repairing o/head wire, '14, 4x5 overhead off. Ore. Elec. RR.; Off. Builders pix NYC, LS&MS, TYP, etc.; large collec. midwest, some eastern elec.; wreck pix, steam, elec.; NYC emp. tts., new. Wants C&LE, Ind. RR pix, tts.

H R. JOHANNESSEN, 9111 Sudburg Rd., Silver Spring, Md., will exchange builder's nos. B&O Diesels, PRR steam, elec. Diesel for same PRR, LI, NH. steam, elec. Diesel.

(R) ELLIOTT H. KAHN, 856 Nostrand Ave., Brooklyn 25, N. Y., wants to sell *Railroad Magazines*, Dec. '39 to Feb. '44; May '44 to May '46; all good cond., unclipped.

BOB KAIN, *(The Rail Rangers)*, 26 Whitton Rd., Hamilton, Ont., Can., will sell or trade good size 116 CP, CN pix; will also buy good 116 negs. List, sample, 10c.

(*) GLENN T. KING, 3229 E. 3rd St., Dayton 3 O., sells copies Bulletin 2, *Southern Ohio Div. Elec. Railroaders Assoc.*, 15c ea.; few copies Bulletin 1, *City Railway*. No. 2 contains info. Dayton City, interurban lines, 4 drawings, 2 roster notes; covers Oakwood & Dayton Transit, City Ry., Cincinnati & Lake Erie RR.

(R) FRANK W. KINGSLEY, Box 195, Pittsford, Vt., wants copy of *Railroad Magazine*, Jan. '47.

(R) JACK KROLL, 2830-A N. 4th St., Milwaukee 12, Wis., wants to swap *Railroad Magazine* '31 to '41 for '36 to '45; interested in schedule mail routes; swaps RPO marks; also emp. tts. '42, '43; emp. mags.

DAVID KURSTIN, 935 15th St. SE, Washington 3, D. C., has *Nat'l Geog.*, 40c ea. p.p.; *Trains*, May '46, 25c; *Off. Ry. Guides*, Nov. '41, Jan. '42, Oct. '46, Mar., Apr. '47, $1.10 ea.; other mags., good cond. Offers 25c ea. for *Trains*, Jan., May, Oct., Nov. '41.

RICHARD F. LAITENBERGER, Box 99, Union Hill, N. Y., will sell one copy Vol. 5, *Trains*, $4. Wants vols. 1, 4.

(R) GEORGE LARNED, 9 Orchard R., Larchmont, N. Y., wants serial story *After A Million Years* by Garett Smith, publ. at time *Railroad Man's Magazine, All-Story Weekly* were combined. Will pay any reasonable amt.

ROBT. J. LINDEN, 126 E. 4th St., Lansdale, Pa., will mail RDG. tr. ords. for addressed, stamped env.

RUDOLF LOOS (15), Geschwenda, Thuringia, Germany, Russian Zone, will sell collec. 300 different (colored loose cards) locos, trs., etc. from Germany and Europe.

JOHN A. MACLEAN, 64 Rainsford Rd., Toronto 8, Ont., Canada, will sell size 616 BCER, CN, CP, SP and SF Muny pix, 10c ea.; few 620, 7c ea. List, sample, 10c.

(*) STEPHEN D. MAGUIRE, 802 10th Ave., Belmar, N. J., offers rare steam and elec. tts,, guides, etc., at mail auctions. Send postcard for list.

(R) D. E. McCRACKEN, 1318 7th Ave., Altoona, Pa., wants *Railroad Magazines*, July-Nov. '40, will pay good price for good cond.; also wants emp. tts. Western Div's. B&O, PRR & Monongahela Div.; will buy; trade middle div. tts. with any fan; wants yard maps, tracks blueprint.

(R) BRUCE H. McINTYRE, 1545 Liberty St., Franklin, Pa., wants *Railroad Magazine* July '41 to Jan. '42; cash or trade for back issues *Trains*, PRR pix, tts.

P. MANSKI, 613 S. Main St., Webster, Mass., wants to buy tts., emp. tts. New Haven or B&A, '14 to '30.

EDGAR T. MEAD, North St., Greenwich, Conn., wants to correspond with young lawyers and financiers also interested in present and past history of short-lines.

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L. D. MOORE, Jr., 2102 Parker Ave., Portsmouth, Va., wants to buy size 116 or 616 engine pix taken around Enid, Okla., as Frisco, RI, AT&SF; also S. Springs, Okla. Ry. pix.

Pfc. E. A. MORKIN, 18185572, 611th AAF, B. U. sqdn. G (Photo), Eglin Field, Fla., wants Milwaukee, CGW pix and literature.

(R) WALTER A. NEUMEISTER, 833 Huron Ave., Sheboygan, Wis., will sell many issues *Railroad Magazine* '36 to date; list for stamp; has issues *Model Builder, Model RR.*, excell. cond.

(*) MANUEL NORIEGA, Jr., 19 Hartford St., San Francisco 14, Calif., is holding auction rare elec. *Ry. Journals, Reviews*; sends list for stamp.

CECIL PALMER, Meridale, N. Y., will sell size 616 B&O, CV, D&H, RDG, WM, other pix. List for stamped-add. env. Wants to corres. with B&H, CV fans interested in trading pix.

H. L. PETERSON, Box 97, Ponca, Neb., has eng. pix for sale, 2 for 25s, CB&Q Inspection eng. 366, 388; Heisler-geared loco, Rapid City B. H.; Western 51, KC&StJoe 7, Lake Tahoe 1, others.

(*) R. W. RICHARDSON, 477 E. Market St., Akron 4, O., has lists trolleys, short line, n. g., incl. Lawndale, OR&W, Tionesta Valley, Colo. Wants pix NOT&L, Ohio short lines.

(R) ROBT. RUMER, 4920 N. 5th St., Phila. 20, Pa., will sell *Railroad Magazine* '34 to date, excell. cond.; railroad fiction by Packard, Johns, Steele, etc.

(R) CHAS. S. RYAN, 1435 Cabrillo Ave., Venice, Calif., will sell or trade *Railroad Magazines* Sept. '34, no index pp.; Dec. '34, ½-page of Spot cut; Now. '35 good; Dec. '41, fair; Mar. '42, fair; Aug.-Sept. '42 good; July '43 and Jan. '44 fair. Wants Apr. '30; June '32; Jan. '46; will consider Dec. '29, all '30, exc. Sept., Nov., Dec.; June, Sept. '31; Mar. '32, with covers, unclipped.

(R) CLYDE A. SAILORS, Jr., 210 S. H Street, Bakersfield, Calif., will sell or trade for stamp collec. 68 *Railroad Magazines* '35 to '47, *Model Railroader, Trains, Model Craftsman*, other rr. books. Write for list, make offer; all good cond.

(*) ERIC SANDERS, 4566 Rolando Blvd., San Diego 5, Calif., has postwar status San Diego elec., set 9 pix, size 116, explanatory sheet, 50c.

(*) BOB SCHUUR, 174 Edgemoor Ave., Kalamazoo 34, Mich., wants info., pix, negs., good cond., of Michigan interurbans, streetcars, elec. lines.

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(R) JUSTIN F. SMITH, 5628 Patterson, Chicago 34, Ill., will sell *Railroad Magazines, Trains, Model Railroader*, pix locos, all sizes, emp. tts., IC roster, passes, HO frt., pass. cars.

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(*) DUDLEY W. THICKENS, RT. 2, Box 620, Walnut Creek, Calif., will sell size 616 western, Canadian juice, steam rods. pix; also some western U. S. rr. negs. Wants Feb. '41 *Trains*.

(*) GLENN VAN EMAN, 3343 Parkwood, Houston 4, Tex., wants steam, elec. loco pix, streetcars in Tex., esp. shots MK&T, Texas Elec. lines.

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(R) HAROLD L. YOUNGER, 8956 Norma Pl., Los Angeles 46, Calif., will sell in lot to highest bidder *Railroad Magazines*, Sept. '45-Nov. '46, Jan.-Sept. '47, unclipped. Write first.

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CALLING Ohio electric fans. The Akron Railroad Club will sponsor a field trip over the Youngstown & Southern, last Ohio interurban which is expected to cease passenger operation on or about January 1st. The Sunday for the excursion has not been set; those interested should contact Robert W. Richardson, 477 E. Market St., Akron 4, Ohio.

* * *

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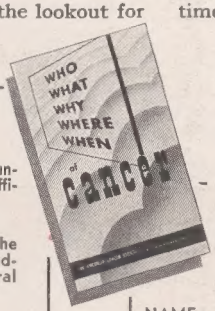

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